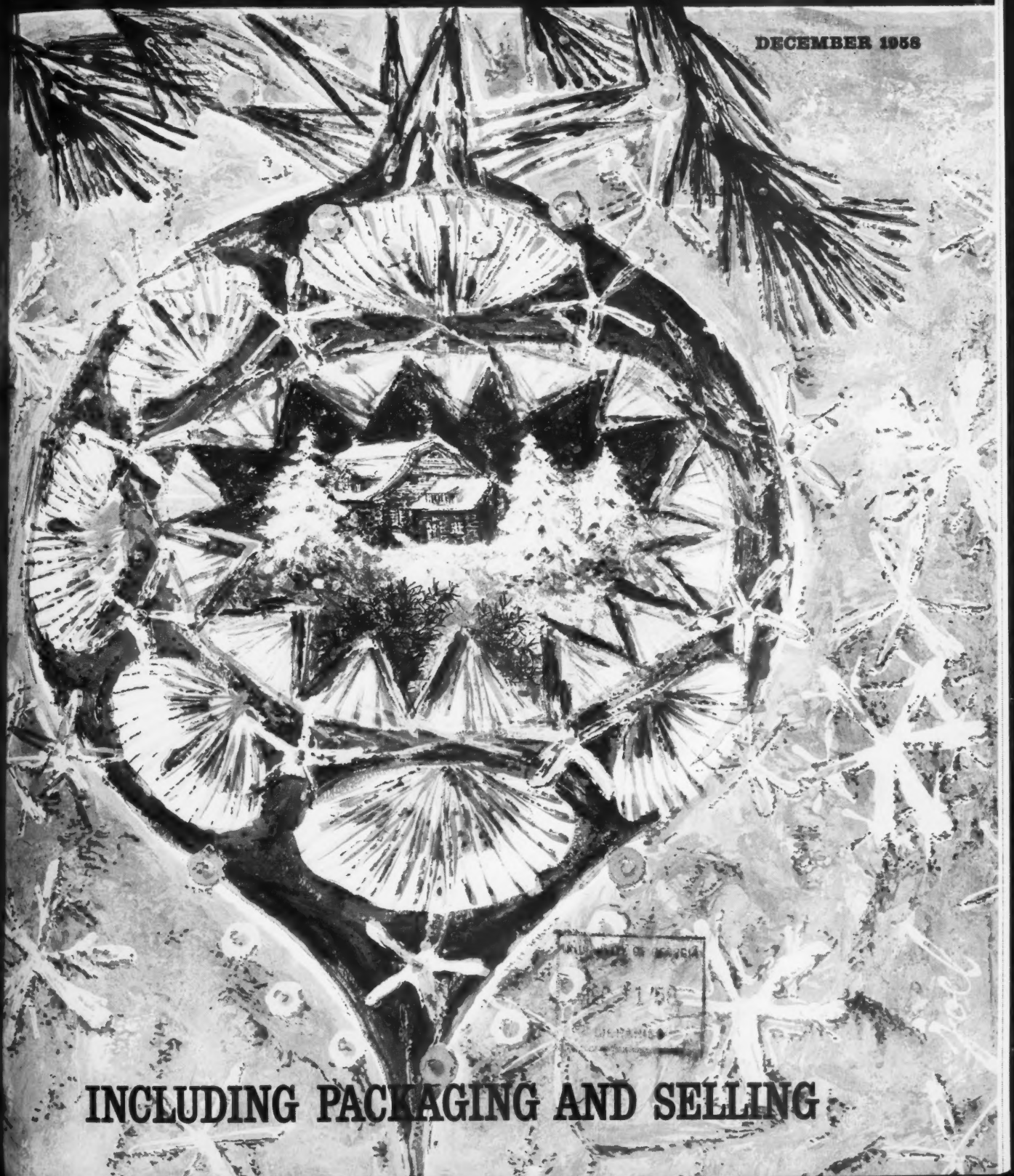
DRUG & COSMETIC INDUSTRY



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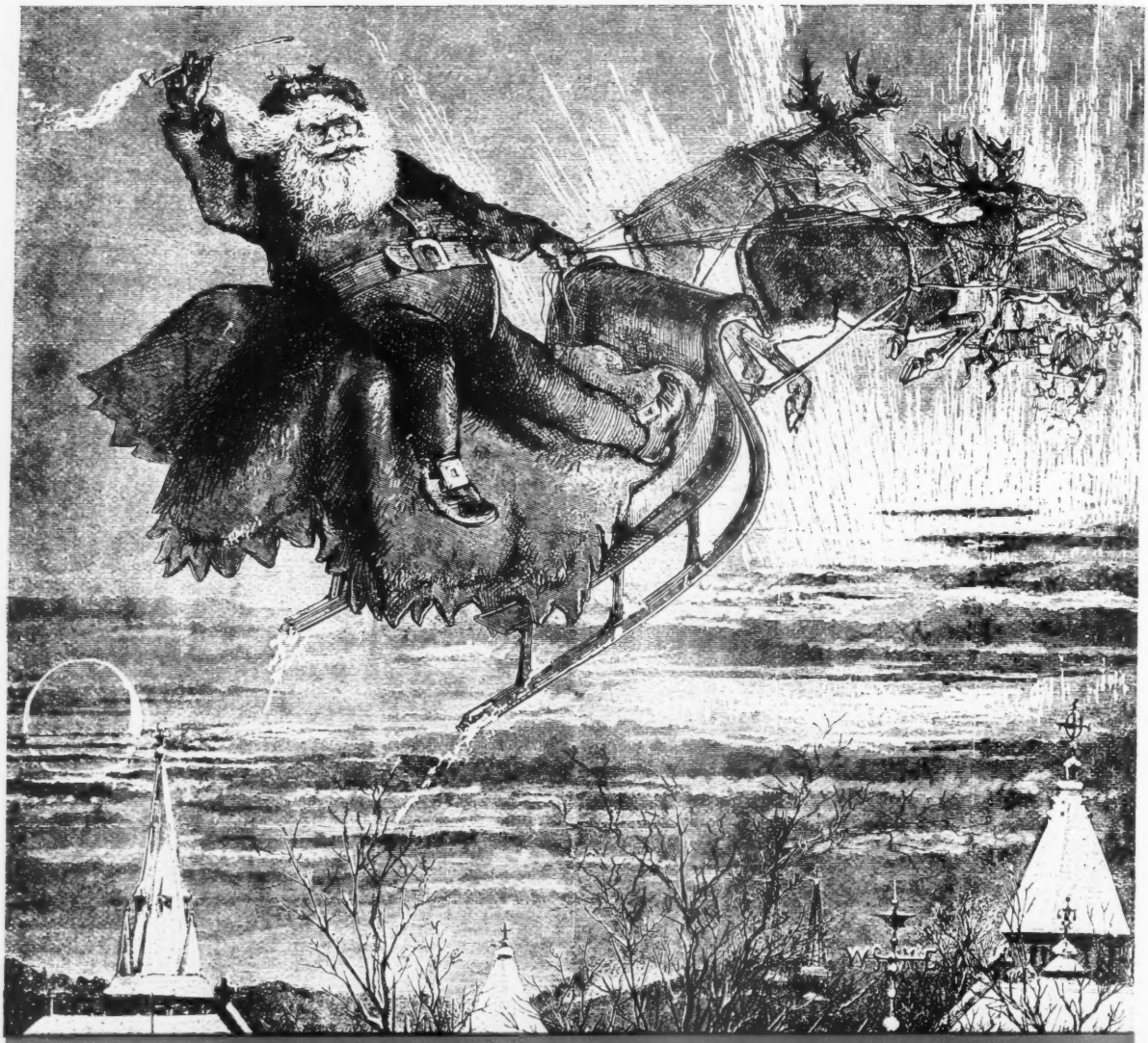

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Drug and Cosmetic Industry

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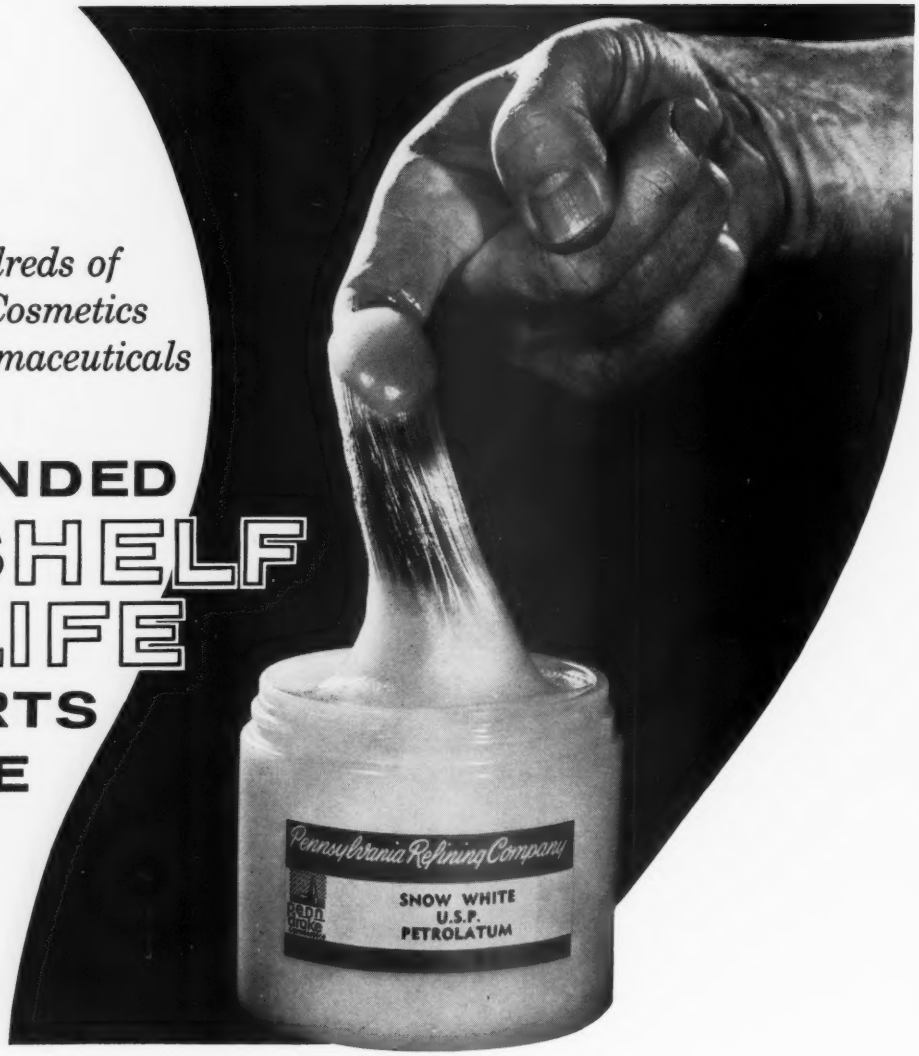

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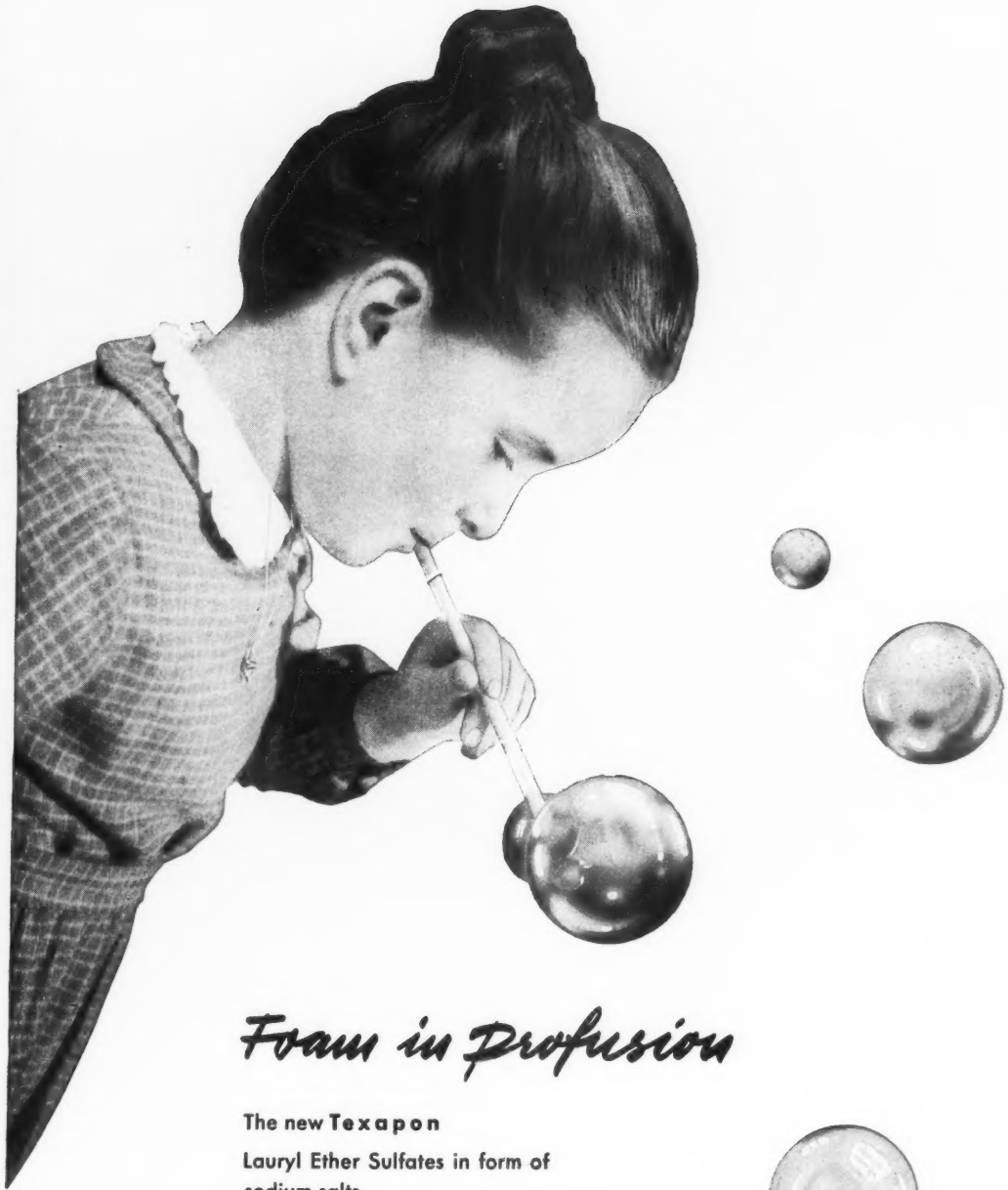

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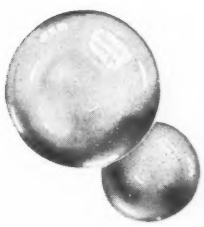

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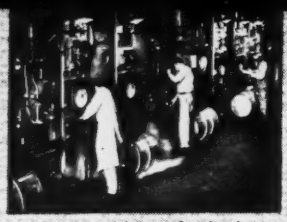

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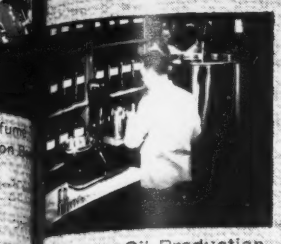

Perfume Oil Production

Cosmetic Research

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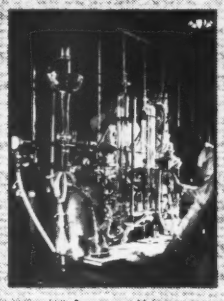

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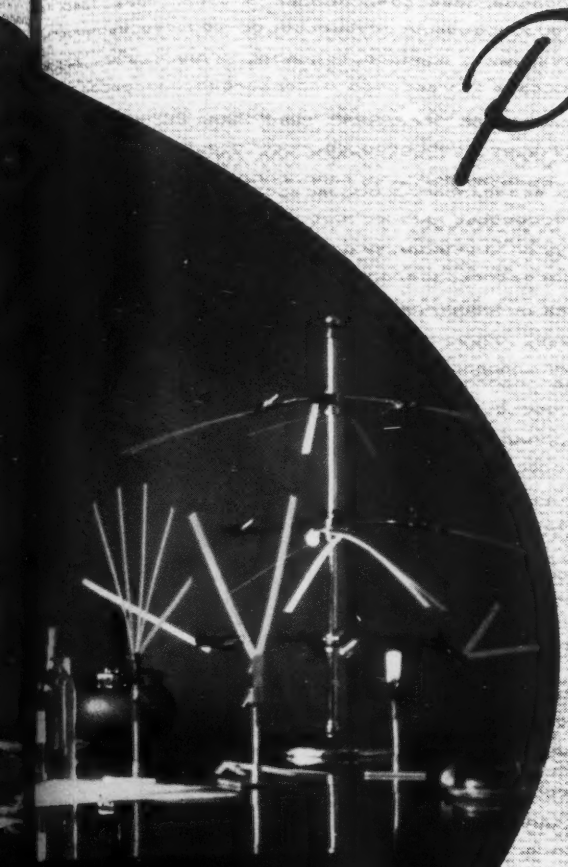

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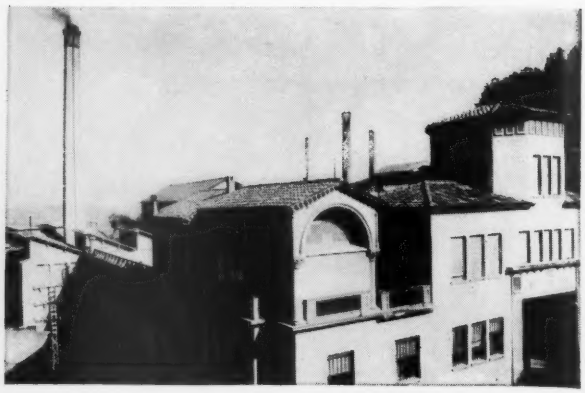

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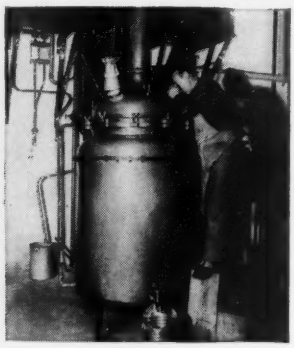

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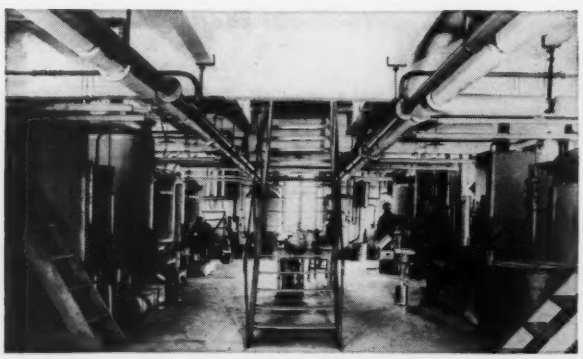
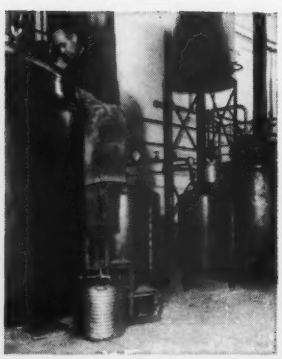

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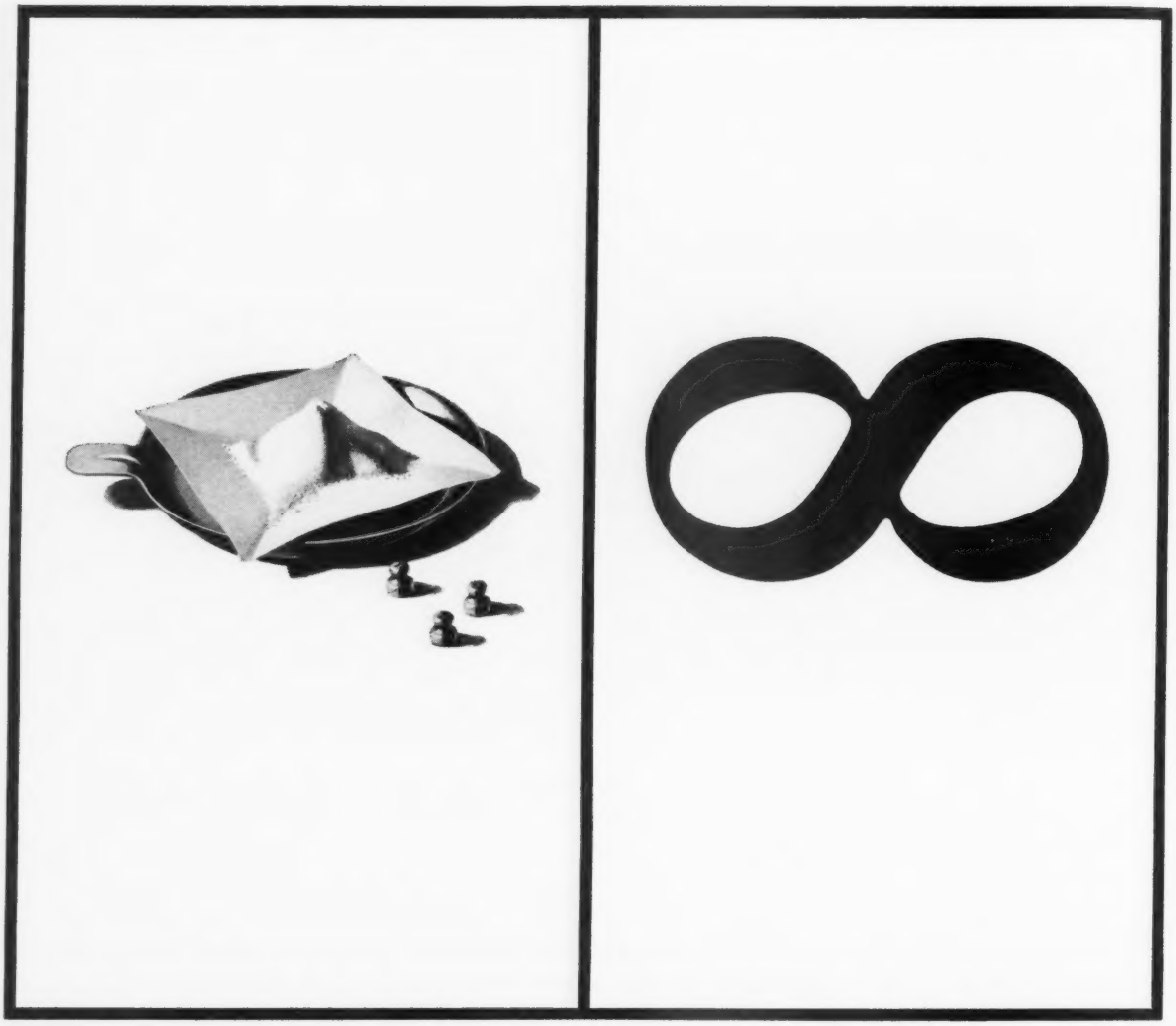

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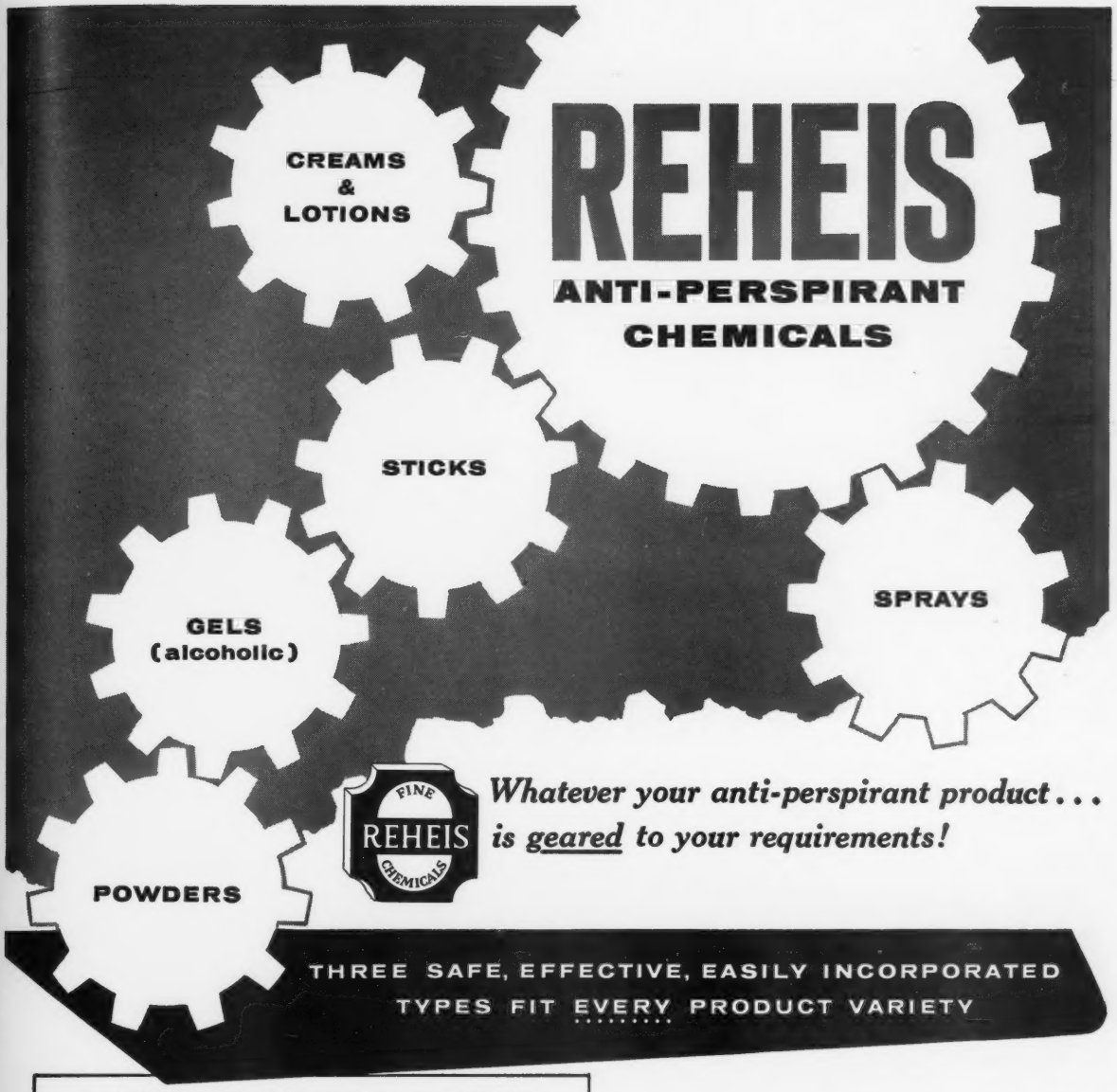

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Available in 5 forms . . . granular, fine, medium, impalpable, 50% W/W solution.

For GELS:

CHLORHYDROL S-5

(aluminum chlorhydroxide complex—modified)

In solid form for alcohol type . . . grease and gum free gels.

For STICKS:

CHLORACEL

(sodium aluminum chlorhydroxy lactate complex)

Available as a 40% W/W solution for use in making Cologne type sticks.

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- effective anti-perspirant action
- fine deodorant qualities
- non-destructive to fabrics
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REHEIS COMPANY, INC.

Manufacturers of Fine Chemicals

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DOW CHEMICALS... *Vive la difference!*

In the fascinating "numbers" game of modern chemistry, molecules and molecular weights can be shuffled around like cards into almost endless combinations . . . *winning* ones for the company that capitalizes on these possibilities for product improvement. When today's successful manufacturer determines what the public wants (and where competition fails to provide it) he can call on the chemist to deal his products a significant, sales-making difference. The chemicals reported on here, some new, some old, have helped many manufacturers of cosmetics and pharmaceuticals to win when the competitive chips were down.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

Route to:

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GLAMOUR LOTIONS GET LIFT FROM POLYETHYLENE GLYCOLS

When it comes to polyglycols for cosmetics and pharmaceuticals, you pick your weight and take your choice. Dow's family of 12 polyethylene glycols (broadest line commercially available) offers different molecular weights with different properties. The polyethylene glycols with average molecular weights from 200 to 600 are all viscous, clear, colorless, somewhat hygroscopic liquids with low vapor pressure. Those with molecular weights of 1,000 or more are wax-like or hard solids. By adjusting the proportions of liquids and solids in a mixture, it is possible to prepare a wide range of useful liquids, pastes, and solids of varying viscosities and melting points.

If more beauty queens seem to be taking more prizes these days, it may be because aids to feminine charm are more potent than ever. The relatively new chemical family of the polyglycols is finding increasing usefulness in the cosmetics field as bases or carriers to increase the effectiveness, safety, and ease of application of many toiletries.

Face value high. In formulas for face cream, protective creams, astringent creams, hair conditioner creams, they act as very effective solubilizing agents and impart good water solubility. For make-up and face powders, the higher molecular weight "PG's" serve as the tie that binds. They help pancake make-up stay in place, once it's applied. They serve as antidusting agents for powders and synthetic detergents.

For more-than-skin-deep effectiveness, the polyethylene glycols offer water-solubility, blandness, wide compatibility, and low toxicity . . . essential to many creams and lotions. Water-solubility permits them to be removed easily from the skin or clothing that may come into contact with such a base. They yield end products with superior softening, conditioning and skin smoothing properties, free from unpleasant tacky feeling. This allows them to be used as a substitute for sorbitol, glycerine, and lanolin, with important savings in cost.

In pharmaceuticals, too, the polyethylene glycols are extremely useful bases and carriers for water washable, nonstaining salves and ointments. High compatibility makes them excellent solvents for many common medicaments and assures good contact of the therapeutic agent with the area to be treated or protected. When in contact with the skin, the polyethylene glycol allows for the swift release of the medicament. Some of these agents are sulfur, phenol, ammoniated mercury, mercuric oxide, quaternary ammonium compounds, boric acid, resorcinol, salicylic acid, coal tars, gentian violet, calamine, propionates, undecylenates, sulfa drugs, antibiotics, hormones, cortisone.

The polyethylene glycols are of a relatively low order of toxicity. Re-

Twelve different polyethylene glycols ranging from liquid to solid offer unique opportunities for product improvement.

peated patch tests on people have shown the "PG's" of no significance in causing skin irritation or sensitization. And, of course, polyethylene glycols E-400 and E-4000 as well as polyethylene glycol ointment are listed in the U.S. Pharmacopoeia XV. Polyethylene glycol 300 appears in the National Formulary X.

What's next? Although a relatively new series of products to the pharmaceutical chemist, polyglycols have already yielded a rich harvest of helpful applications. One such promising field: the use of high molecular weight polyethylene glycols in tablet coating and as a binder in tablet compression.

DOWANOL DPM:

helps "togetherness" pay off for lotions

Cloudy sales days inevitably come to cosmetic and drug products that suffer "ingredient breakdown". Given a choice, customers will buy the product that looks clear and clean as opposed to the ones that look cloudy. And who can blame them?

Dowanol® DPM (dipropylene glycol methyl ether) is actually a supersolvent that performs wonders when it comes to keeping ingredients coupled. Even under the low temperatures frequently encountered in shipping, Dowanol remains the perfect "mixer", so that products arrive at the retailers looking just as clear and bright as the day they left the plant.

Moreover, Dowanol DPM is safe for applications involving skin contact. It caused no irritation or sensitization of the skin when tested undiluted on 250 humans. Its oral, skin absorption, and vapor toxicities are low.

DPM is already serving as perfume fixative, lotion coupling agent, solvent in nail polish lacquers, extraction and crystallization agent in antibiotics. Of course, Dowanol DPM must be evaluated for each application.

DOW CHEMICALS

basic to the drug and cosmetic industry

Aromatics • Emulsifiers • Alkalies
Thickeners • Stabilizers • Glycerine
Solvents • Humectants • Glycol Ethers
Polyols • Preservatives
Ion Exchange Resins
Chelating Agents • Methylcellulose
Amino Acids • Fine Chemicals
Pharmaceutical and Medicinal Intermediates

YOU CAN DEPEND ON

DOW

ETHANOLAMINES: Crystal-clear outlook for shampoos

Time was when manufacturers of cosmetics, shampoos, lotions and other specialty items found that changing formulas to improve products — and profits—was fine, except for one accompanying problem. Coming up with an emulsifier having exactly the right properties for the new formula was often difficult.

Then came all-purpose ethanolamines and the problem was just a memory. Mixing different ethanolamines with fatty acids produces a wide assortment of emulsifying characteristics. The required viscosity is attained easily and accurately.

Regardless of the method or fatty acid used, or the other variables involved, it's easier to formulate emulsions with ethanolamines.

The trend toward lighter colored shampoos gets an assist from ethanolamines' flexibility. To make these shampoos requires an ethanolamine . . . such as the new, light, clear Dow triethanolamine.

Thanks to their versatility, Dow ethanolamines have been able to make "product" and "profit" hold together for manufacturers with emulsion problems. Dow has more facts awaiting your "on company letterhead" request.

For further information on these products and other Dow chemicals, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Sales Department 757D-1

four more

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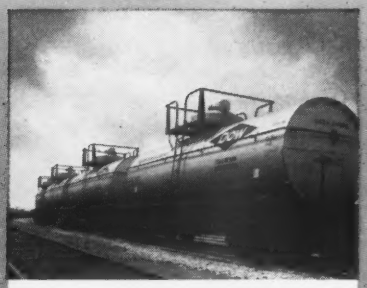
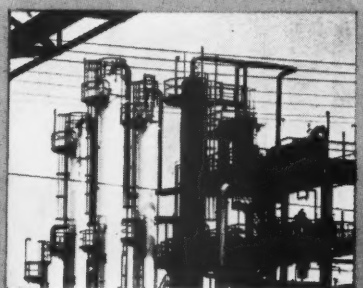
METHOCEL®

Outgumming natural gums . . . these synthetics have wide viscosity range. Invaluable as thickeners, binders, emulsifiers, dispersants.



PROPYLENE GLYCOL USP

All over the U. S. . . . Dow's network of supply points affords fast, dependable delivery of this very economical polyol . . . with unexcelled uniformity!



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"Building block" chemicals . . . Dow is basic in making these chemicals that form the foundation of so many other fine chemicals.

DOWICIDE®

Prevents product "suicide" . . . used in hand lotions, hair dressings, many cosmetic emulsions to prevent bacterial and mold damage.

Here's a new and distinctive perfume oil concentrate that adds high-fashion appeal to your popular-priced products. A delightful floral fragrance that's equally at home in perfumes, toilet waters, creams, powders and talcums. FLORDINE possesses all the necessary fixative properties to make it long-lasting in the finished products. Only 8.50 per pound.

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FOR PERFUME, TOILET WATER,
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Specialists in the creation of perfume odors exclusively

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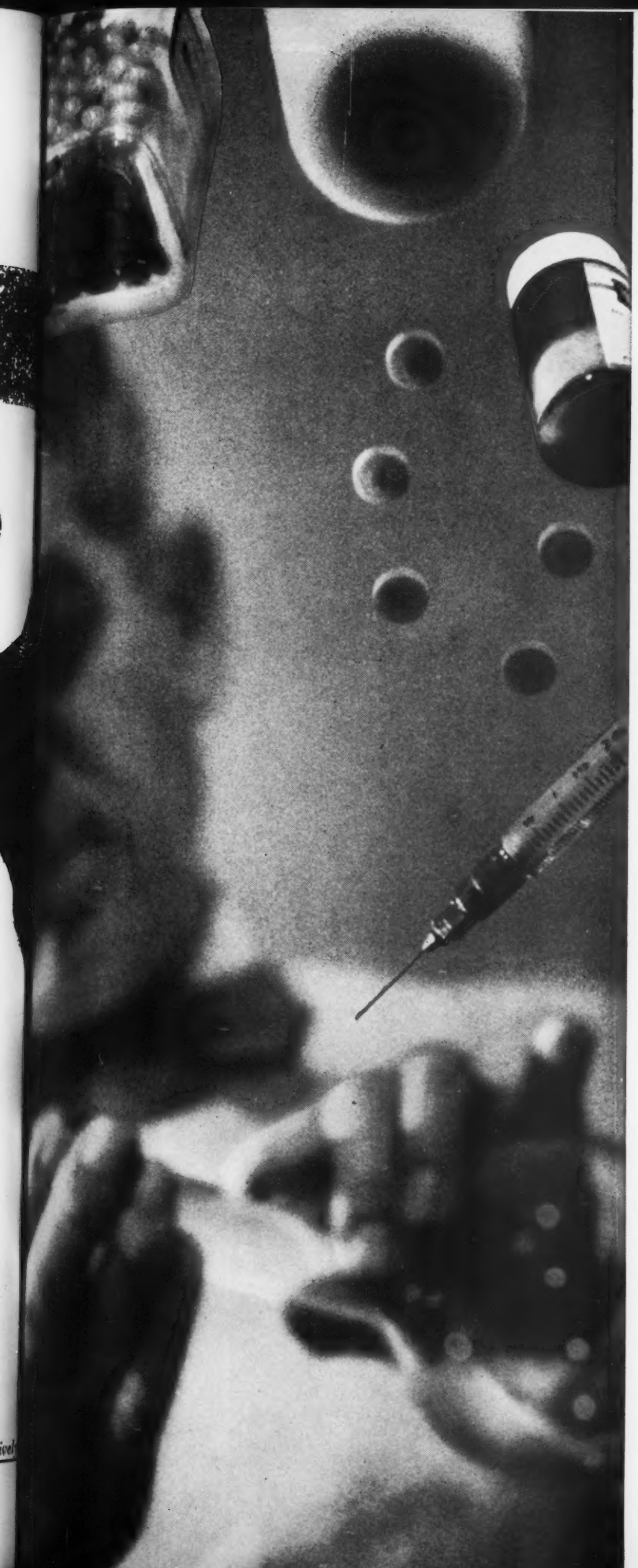

℞ for better pharmaceuticals... CARBOWAX polyethylene glycols

Here are ten anhydrous, water-soluble compounds that make effective, low-cost vehicles and carriers for your medicaments.

In tablet formulation, CARBOWAX polyethylene glycols shorten wetting and drying processes as well as costly double compression. They also make ideal noncaloric tablet coatings that can be applied in half the time required for sugar coating.

Ointments based on CARBOWAX polyethylene glycols spread on evenly and adhere well even if the skin is moist. And, ointments based on CARBOWAX polyethylene glycols can be quickly and easily removed with a water rinse.

With the wide range of viscosities to choose from, you can formulate suppositories with any desired degree of stability and disintegration rate. And, research indicates that low viscosity members of the CARBOWAX family may be used interchangeably with propylene glycol as intramuscular injection vehicles.

Find out how these unusual materials can improve your profit picture. Write for the newly-published booklet, "CARBOWAX polyethylene glycols." Write . . . Department B, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York.

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DIVISION OF UNION CARBIDE CORPORATION

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Their creative genius is attested by the many proven international successes in the field of fragrance requirements . . . be it in the development of original perfumes, colognes, aerosols, cosmetics, soaps and other toiletries . . . or in the masking area where odors have to be covered rather than developed.

Roure-Dupont, Inc. technical staff is in a unique position to put its vast international facilities and know-how at your disposal.

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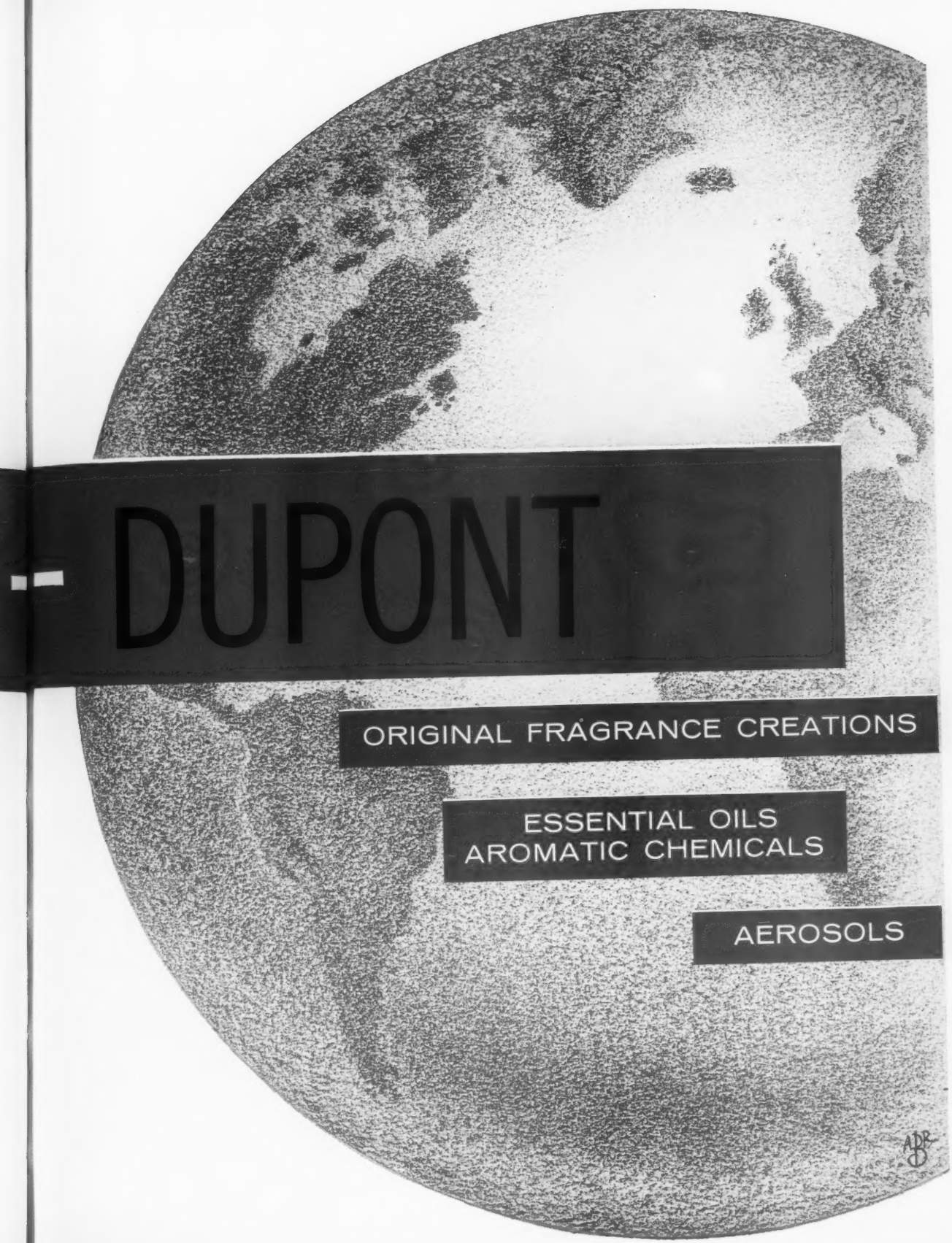
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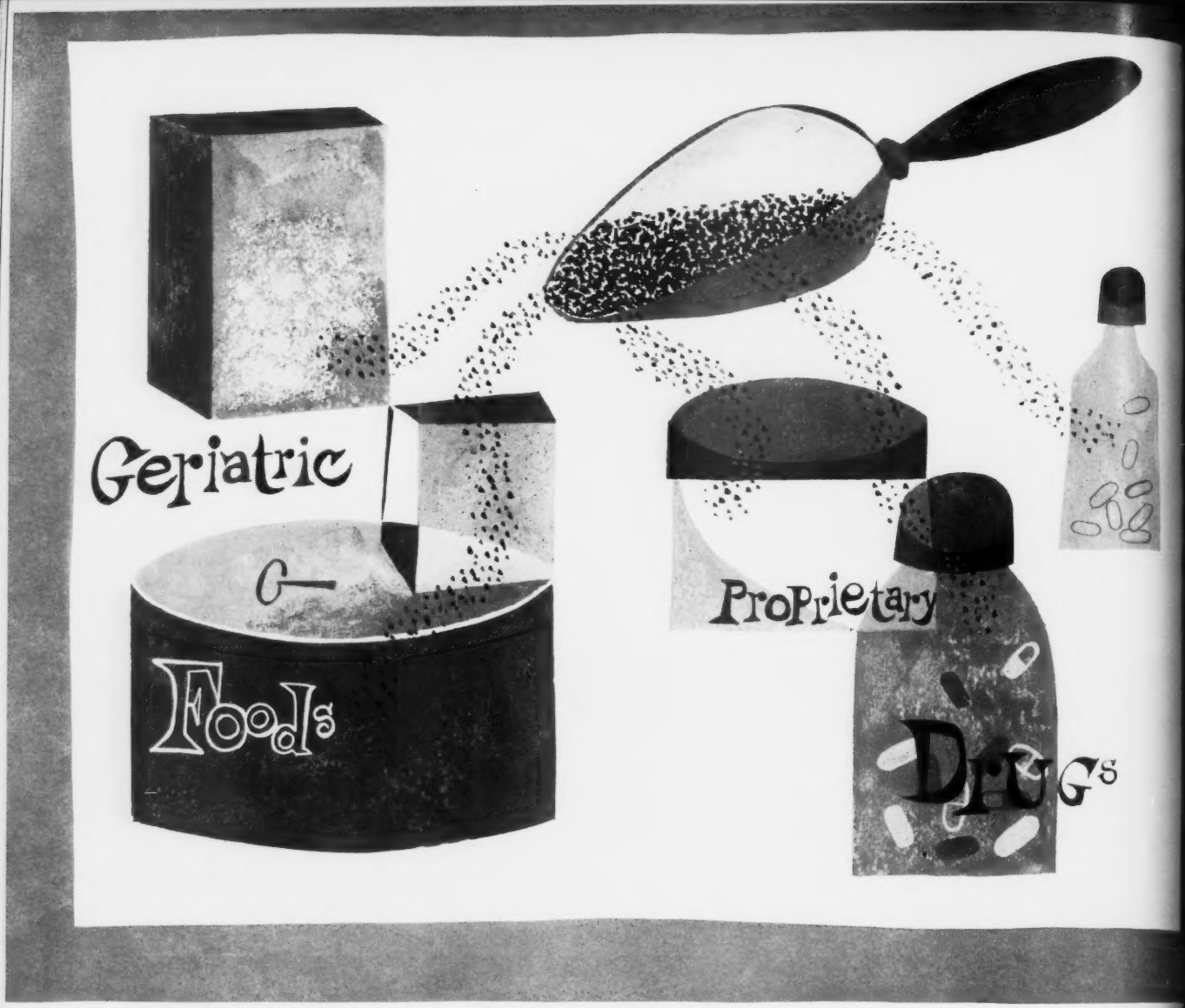


LACTOSE: APPLICATIONS UNLIMITED

MILK SUGAR

HUNDREDS of applications for drug and food product manufacturers... important new uses being developed constantly... limitless versatility in product improvement. That is why Lactose (milk sugar) deserves your consideration.

REMARKABLE PROPERTIES OF LACTOSE

Free-flowing Lactose is an excellent anti-caking aid. It keeps powdered ingredients, which normally cake or lump, free-flowing... even under adverse storage conditions. It is soluble, uniform, and does not react with active medicinal ingredients. Lactose is a mild, almost tasteless triturate for patent drugs. Its slow fermentation creates a nutritional stress on molds, promoting maximum yields of penicillin and other antibiotics.

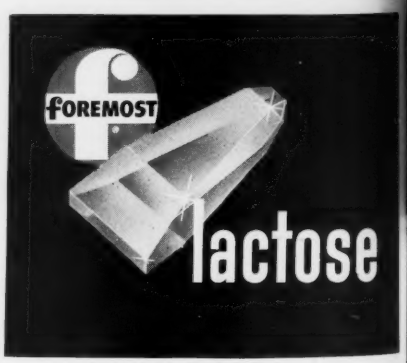
ONE FULL LINE SUPPLIER

Only Western offers you all forms of Lactose in unlimited quantities... 5 grades... 10 granulations (plus granulations made specially to your order). And there is a plant or warehouse near you for most efficient service.

UNIFORMLY HIGH QUALITY

Western's rigid control and testing standards maintain the high quality and purity you need. Exclusive Western techniques and equipment produce maximum particle uniformity. That's why you can count on Western, the world's largest supplier of Lactose, for best results in product performance.

Find out how Lactose from Western can help improve your products. Write Technical Service, Department 23M, telling us the application you are considering.



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Appleton, Wisconsin

WORLD-WIDE SUPPLIER OF HIGH-QUALITY MILK DERIVATIVES

Distributed nationally by **Chemical Department, McKESSON & ROBBINS, INC.**

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Constant research for more than 65 years has made the contribution of Firmenich to the perfumery world both substantial and imaginative. Joining the academic approach to technical skills, Firmenich has achieved the synthesis of a wide range of natural materials, created new tonalities, discovered complex notes hitherto unperceived. These specialties enjoy universal acceptance and their creators have been honored by the Nobel Prize and four International Awards administered by the American Chemical Society. The originality of their research has been shared with fellow scientists in more than 300 technical papers. Firmenich technicians are highly qualified to assist you in your creative problems and in the use of Firmenich specialties in your imaginative practice of the art of perfumery.

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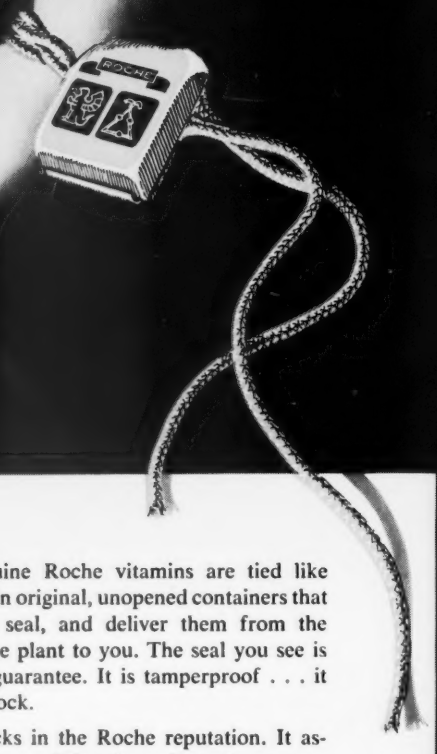

Genuine Roche vitamins are tied like this, in original, unopened containers that sign, seal, and deliver them from the Roche plant to you. The seal you see is our guarantee. It is tamperproof . . . it is a lock.

It locks in the Roche reputation. It assures you of vitamin purity and potency—tested, analyzed, the finest. It protects a product that has been produced under rigid Roche control with maximum regard for quality. It's the follow-through, from us to you, of what science and skill have made. It's our honest vitamin pledge.

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"After this green pill cures him, give him this sedative—if you want a fighting chance."

Keeping Posted

Brand-Name Perfume Imports

The U. S. Government dropped a four-year lawsuit to keep trademark holders from excluding imports of goods made by affiliated foreign companies and bearing the same trade-marks.

In an unusual move, the Justice Department, which had won three test cases in a District Court, said it was giving up those victories and would move to dismiss the cases.

The issue centered on a provision of the Tariff Act of 1930. It prohibits imports of goods bearing trademarks registered in the United States except with the written consent of the American trade-mark holder.

The Justice Department had contended that this provision did not apply when the foreign producer and the American trade-mark holder were affiliated.

To test that theory the department brought civil antitrust suits against three perfume companies in 1954. Guerlain, Inc., Parfumes Corday, Inc., and Lanvin Parfums, Inc., were charged with monopolizing toilet goods distribution by prohibiting French-made items with their trade-marks.

Each company was an American branch of a French concern. Each imported fragrances from the parent company.

The three losing defendants had appealed to the Supreme Court. Solicitor General, J. Lee Rankin, asked the Court to vacate the judgments and send the cases back to the District court to be dismissed on Government motion.

The Government obviously had special reasons for relinquishing the victories it had won in the lower court. Apparently Mr. Rankin and his staff, in preparing the case for the Supreme Court, simply decided the Government view of the law could not be defended.

The Steroid Hormone Market

The market for adrenocorticoid preparations has increased each year since the introduction of cortisone in 1950. Starting with an annual volume of $13 million, total sales at manufacturer's level of corticoid preparations are now estimated to be slightly over $95 million. This compares with approximately $350 million of antibiotics at manufacturer's level. The total "ethical" sales of the pharmaceutical industry in 1958 are at approximately $2 billion.

Approximately 9 per cent of all prescriptions written by American physicians are for corticoid drugs. This compares with 15.5 per cent for the antibiotics, and 10 per cent for the tranquilizers.

Each new steroid discovery broadens the area of usefulness for the corticoids. The discovery of cortisone and its successful synthesis and introduction by Merck introduced the first practical synthesized drug for the alleviation of rheumatoid arthritis and related collagen diseases.

The synthesis of hydrocortisone contributed further to expansion of the market as the latter steroid found special usefulness in dermatologic and ophthalmic fields. Schering, Upjohn and Pfizer also introduced hydrocortisone. In 1954, Squibb chemists succeeded in developing fludrocortisone. Sales for the year exceded $50 million for the first time.

In 1955, the discovery of the steroids prednisone and prednisolone by Schering scientists widened the area of usefulness of the steroids. By the end of 1956 the total market for these compounds alone exceeded $50 million and the total market reached approximately $85 million per year. The advent of methylprednisolone late in 1957 and of triamcinolone this year have brought the total volume of sales for these drugs to nearly $100 million.

Early this year, Merck announced the development of 16-alpha-methyl-9-alpha-fluoro-prednisolone followed shortly by a similar announcement by Scher-

Specify **glycerine** with confidence

Conveniently located storage facilities
assure prompt delivery,
from a drum to a tank car.

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ing that they had independently developed this substance. This compound showed in clinical trial increased activity milligram for milligram over other steroids, being 5 to 6 times as active as triamcinolone and methylprednisolone and nearly 40 times as active as cortisone.

It is not likely that the introduction of "Decadron" by Merck and "Deronil" by Schering will have an immediate effect on the expansion of the overall market. However the market may be extended as the average physician responds to the new lower dosage steroids which will presumably add to the greater safety in use of this therapy.

One of the interesting facts about the steroid market is that the accepted older steroids do not become obsolete as new discoveries make their appearance. For instance, the cortisone market is still several million dollars per year, and that for hydrocortisone nearly one-quarter of the total because of continued use of the latter in certain areas of treatment. Prednisone and prednisolone, which doubled the market in four short years, will probably continue in the neighborhood of $40 million or more per year because of their wide acceptance and acknowledged greater safety in use due to freedom from some side effects.

Physician's response to the new antiarthritics will probably result in an increase in the market to $120 million for 1959. There should be little material change in the position of the other steroids.

Hazel Bishop, Inc., Reorganizes

"The New Look" for Hazel Bishop which was promised by Robert G. Urban when he took over as president of the cosmetic firm three months ago, is well on its way to realization.

The four pronged reorganizational campaign has already resulted in major changes in the sales, advertising, product promotion and research phases of the Bishop operation. The sales staff has been increased from fewer than six to 52 men and seven divisions covering the entire country have been created, with a sales manager in charge of each.

The new advertising campaign for Hazel Bishop products is also moving into high gear. The backbone of this undertaking will be spot TV announcements which are estimated now to be reaching 86 per cent of the TV homes.

The TV campaign is being backed up by full color ads in consumer magazines.

Another important phase of the Hazel Bishop facelifting operation has been to redesign all packages. During the last few months, Mr. Urban said, the company has been taking back merchandise and replacing it with products that stress the new look of lushness and elegance that from now on will be a Hazel Bishop trademark.

Iron Curtain Exports

The Commerce Department will now allow exports of antibiotics and similar drugs to Russia and its European satellites.

Exporters still must apply for licenses to ship the drugs, but the department indicated such requests will be granted. Until now, they have been denied. Included are penicillin, streptomycin and dihydrostreptomycin, Aureomycin, Terramycin and all similar antibiotics including sulfonamides.

The drugs still may not be shipped to Communist China, North Korea or North Viet-Nam, which are under total embargo from U. S. goods.

General Aniline Negotiations

Bache & Co., New York investment house, has formed a syndicate to buy the stock of General Aniline and Film Corporation when the Government is in a position to sell its almost 98 per cent stock holding. The Bache syndicate includes W. R. Grace & Co., Paramount Pictures, Inc. and Daystrom, Inc. Grace would take over the dyestuff and chemical division, representing about 46 per cent of sales, Paramount would get the Ansco division, accounting for 37 per cent of sales while Daystrom would control the Ozalid division or 17 per cent of the sales. The investment company is said to have offered $84,000,000 for the Government stock holdings. Two other syndicates are said to be interested in General Aniline acquisition: Blyth & Co. and First Boston Corp.; and Lehman Bros., Glore, Forgan & Co. and Kuhn, Loeb & Co. These would sell the stock to the public, keeping the company in its present form.

Meanwhile, some quarters assert that the Bache figure is too low a price for the General Aniline stock, the Government has not reached an agreement with Interhandel concerning compensation for the shares and, most recently, I. G. Farben has entered the picture with a claim for a share in what Interhandel might receive in settlement of its claims.

Imperial Beauty Research

Formation in Chicago of a new company, Imperial Beauty Research has been announced by Dr. Joseph Schultz.

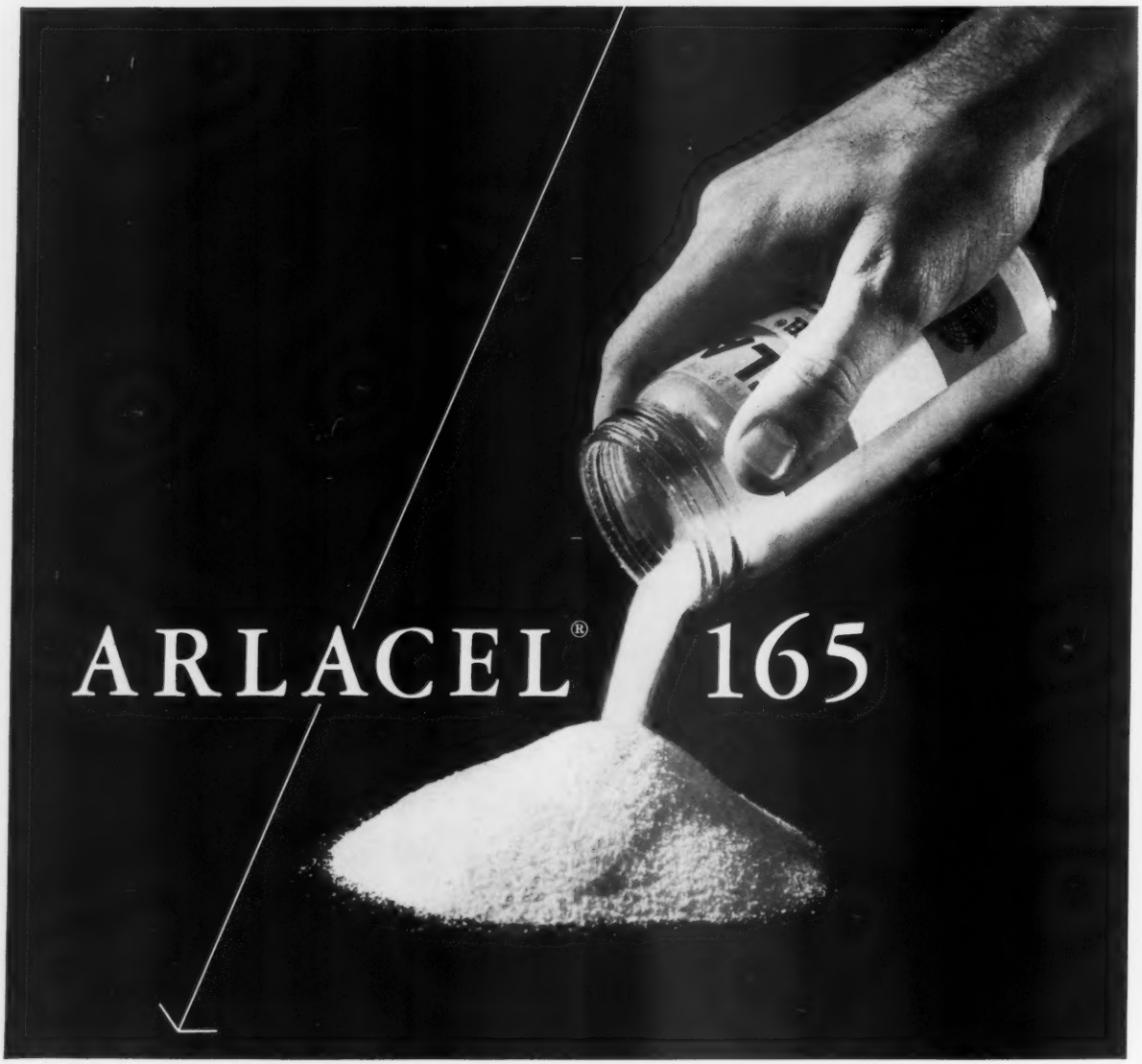
Dr. Shultz, a former president of two other cosmetics companies, Lady Esther and Lanolin-Plus, reported the Imperial Beauty line has been test marketed in several major Midwestern cities and is now being distributed nationally through the facilities of Salespower, Inc., sales promotion and distribution firm.

The Imperial Beauty cosmetics are being marketed on a "direct-to-the-consumer" basis: Salespower expects to have a sales force of more than 5,000 in the field within the next six months.

Syntex Consent Decree

A civil anti-trust action filed a year ago by the U. S. Department of Justice against Syntex and certain affiliated companies was settled by a consent decree entered in the United States District Court for the Southern District of New York.

Under the consent decree, Syntex has agreed to grant



New low-cost, acid-stable g.m.s.

Now, from Atlas' expanded program of development help for cosmetic formulators . . . a unique new acid-stable glycerol monostearate—ARLACEL® 165. It's self-emulsifying, yet *completely nonionic* . . . contains no soaps, gives you wider freedom in choosing ingredients, better stability for emulsions.

With all these advantages, ARLACEL 165 is priced in the range of non acid-stable g.m.s. products! You can use it in reformulating traditional products calling for "self-emulsifying g.m.s." . . . or for making new emulsion products with unique features. You'll save with ARLACEL 165 no matter how you use it.

Write today for a sample and a copy of our ARLACEL 165 Formulating Guide Bulletin (LD-78). Ask to be registered in the Atlas Program for helping you cut lab time and costs—you'll automatically receive all Atlas cosmetic literature and timely formulating "tip" bulletins.

CHEMICALS DIVISION
ATLAS POWDER COMPANY
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non-exclusive licenses under a group of United States and Mexican process patents relating to the use of barbasco root. Syntex may require any applicant for such a license to pay a reasonable royalty. Dr. Rosenkranz, chairman of the board of Syntex, explained: "The consent decree does not require Syntex to grant licenses for any of the specialty products developed by Syntex research. No pending patent applications or past or future product patents are affected by the decree."

Steroid Patent Licence

The patent suit between Syntex, S. A. of Mexico and Schering Corporation and Merck & Co., Inc. has been settled and the two U. S. companies have been granted licenses under the patent. The suit for infringement involved Syntex's Patent No. 2,579,479 covering delta 1,4-diene compounds such as prednisone, prednisolone and other steroids of similar structure.

Revlon Controls Schick

Revlon has purchased approximately 242,000 shares of Schick stock owned by K. C. Gifford, Schick board chairman, and members of the Schick family. This represents the largest single block of the 1,200,000 shares outstanding. The new chairman of the board will be C. G. Gifford, brother of the outgoing chairman, and the new president will be J. J. Reidy, who have also been elected to the board of directors. Other members of the seven man board will be William R. White of the Guaranty Trust Company and four Revlon directors, Charles Revson, Charles Lachman, Harry Meresman and William D. Mewhort.

Bristol Cancer Research

Bristol Laboratories, Inc., Syracuse, N. Y., has been awarded a new three-year government contract expected to total $795,000 for screening agents against mouse tumors. At the same time, the company revealed that it is spending $1,250,000 for a four-story addition to its Syracuse research facilities for cancer and other pharmaceutical research. The new laboratories are expected to be completed by May, 1959 and Dr. William Bradner, formerly of the Sloan-Kettering Institute for Cancer Research, has been named to head the newly approved mouse tumor program.

Bristol recently completed a contract for the Cancer Chemotherapy National Service Center at the National Institutes of Health, Bethesda, Md., involving production of the new antitumor agent, mitomycin C.

The mitomycin contract was part of an earlier government award totaling $870,000. The research is aimed at development of better screening techniques for anticancer agents as well as the discovery of new drugs to fight the disease.

Philadelphia College of Pharmacy Courses

Inauguration of a cooperative program in which scientists from industry participate in graduate student instruction at the Philadelphia College of Pharmacy and Science has been announced by Dr. Ivor Griffith, President of the College.

The first phase of the new program began this semester with a course in the chemistry of medicinal agents taught by Dr. Peter B. Russell, Technical Director of the Research and Development Division of the Wyeth Laboratories.

In the second semester, which begins February 2, 1959, a team of 13 research scientists from the Smith, Kline and French Laboratories, in Philadelphia, will present a 15-week series of two-hour lectures on medicinal chemistry. The topics and lecturers in this series, which was organized by Dr. Glenn E. Ullyot, Associate Director of Research of the Laboratories, are as follows: "Survey of Medicinal Chemistry," Dr. Ullyot; "Cholinergic and Anticholinergic Drugs," Dr. Manfred Wolff; "Sympathomimetic Agents and Central Nervous System Stimulants," Dr. Carl Kaiser; "Central Nervous System Depressants," Dr. Charles L. Zirkle; "Analgesic Agents," Dr. Paul N. Craig; "Anesthetics," Dr. Richard Mohrbacher; "Hypotensive Drugs," Dr. Ullyot; "Cardiotonic Agents and Coronary Dilators," Dr. James W. Wilson; "Steroids" (two lectures), Dr. James F. Kerwin; "Antihistaminic Agents," Dr. Bernard Loev; "Antiviral Agents and Cancer Chemotherapy," Dr. John Hoover; "Diuretic Agents," Dr. Joseph Weinstock; "Plants as Sources of Drugs," Dr. Irwin J. Pachter; "Tracers in Medicinal Chemistry," Dr. Maxwell Gordon.

Drug Store Sales

The 24th annual edition of the "Nielson Report to Retail Drug and Proprietary Stores" points up the following: During 1957, drug and proprietary stores, with sales in excess of six and a quarter billions, showed an increase of 9.4 per cent over 1956, one of the best increases in retailing. Both chains and independents reported increased sales in thes first half of 1958, the former being ahead by 9 per cent, the latter by 6.8 per cent. Prescription business in 1957 was 46 per cent greater than in 1952. For the entire U. S., the average number of prescriptions per family in 1957 was 11.6, but there are wide territorial differences. The East Central area, with 17.2 per cent of the families, accounted for only 12.8 per cent of the prescriptions while the Southeast, with 14.0 per cent of the families, bought 19.9 per cent of all prescriptions. Geographical differences also account for different grooming buying habits; in the Middle Atlantic Region, with 12 per cent of the nation's population, 9 per cent of the hair tonic was sold as against 15 per cent sold in the Southwest, with 10 per cent of the population.

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Remington Rand Sues Sunbeam

Sperry Rand Corporation, acting for its Remington Rand Electric Shaver Division, filed a three-count suit against the Sunbeam Corporation in Chicago in the United States District Court.

The suit alleges patent infringement, unfair competition and infringement of trade mark. Remington Rand seeks to enjoin Sunbeam from manufacturing and marketing electric shavers "confusingly similar" to its "Rollectric" shaver and demands an accounting and assessment of damages.

The complaint adds that Remington, during the period from 1956 to date, has spent more than $15,000,000 in advertising, sales promotion and publicity to promote its registered "Rollectric" trade mark.

Lunsford Richardson Pharmacy Awards

Winners of $2800 in undergraduate Lunsford Richardson Pharmacy Award prize money are to be selected by Drs. George F. Archambault, Madeline O. Holland and Thomas D. Rowe. An additional $2000 will be given by the Vick Chemical and its subsidiaries to the colleges where the first prize students are enrolled.

Four students will receive $500 each and eight students will receive $100 each for the best manuscripts. Subjects for the 5th annual Richardson Pharmacy Awards contest are "What I expect from the pharmacy internship program" and "Why I chose pharmacy for my career." The topics were picked from a list of suggestions by college deans.

Parke, Davis Expansion

Parke, Davis & Company announced a $2,000,000 expansion and remodeling program for the pharmaceutical firm's executive offices in Detroit.

Included in the plans are the complete remodeling of the four-story administration building; landscaping the river-front property; a recently-opened employe cafeteria; a new first-aid medical department; and new laboratories for a special cancer research project.

This new construction is part of the company's $50,000,000 five year capital expansion program which began last year and includes the $12,500,000 Medical Research Laboratories at Ann Arbor, Mich.; new combination branch offices and warehouses in Chicago, San Francisco, Kansas City, Baltimore and Montreal, totaling approximately $4,000,000; and new overseas manufacturing laboratories and branch offices in Bogota, Colombia; San Juan, Puerto Rico; Johannesburg, South Africa; and Bombay, India, to cost more than $4,000,000.

1958 Schering Award

The five winners in each of three divisions of the 1958, 13th Annual Schering Award Competition were announced by Dr. Richard McCormick, chairman of the Award Committee.

Fifteen winners shared in the $5,700 prize money established by Schering Corporation, with individual prizes ranging from $1,000 for first prize, to $50 for fifth prize.

The Schering Award, which began in 1940, seeks to encourage among the Nation's medical students original reporting and exploration of recent developments in therapy. The judging of the papers is referred to leading physicians in the particular field who impartially judge the prize winning manuscripts.

Vick Foreign Acquisition

Vick Chemical Company has acquired Milton Antiseptic, Ltd., of London.

The acquisition is Vick's third in the last three months. Vick acquired Walker Laboratories, Inc., Mt. Vernon, N. Y., in July, and The Lavoris Company, Minneapolis, in October.

While some 20 per cent of the Vick's total sales volume comes from foreign sales and a number of the company's new products were first developed overseas, Milton represents the first foreign organization purchased by Vick.

Milton manufactures a packaged disinfectant and sterilizer, one of the primary uses of which is the sterilization of baby bottles. Through its subsidiary, Vick International, Ltd., Vick purchased for cash approximately 97 per cent of the 391,922 outstanding ordinary shares of the Milton Company.

Upjohn Stock Offer

The stockholders of the Upjohn Company have approved the incorporation of the company as a Delaware corporation and the issue of 25 new shares for each old one. The capitalization will then consist of 14,056,000 common shares of which 2,410,000 will be listed with the SEC for public offering at a later date. It is reported that the company will show earnings of not more than $1.50 a share equivalent to about $21,000,000 of net income after taxes.

Pfizer Stock Split

Directors of Chas. Pfizer & Co., Inc. recommended the issue of one and one-half additional shares for each share of the common stock now held, which will increase capitalization of common stock to 18,750,000 shares. Stockholders will vote on the stock split at the next annual meeting on April 20.

Research Costs

In a luncheon talk at the recent Eighth Semi-Annual Meeting and Winter Conference of the Manufacturing Chemists' Association, L. G. Bliss of Foote Mineral advocated cooperation in research to prevent duplication and control increasing costs. He said, "Frequently the same technical area is researched over and over again, simply because we so seldom are permitted to know what the other fellow has been doing."

We believe that nowhere is this duplication of research effort, time and money more striking than in the pharmaceutical industry and especially in antibiotics and hormones. The story often ends happily, with cross licensing permitting a return on the research investment even for the later patent applicant; this does not, however, eliminate the waste of duplication. Cooperative ventures have been tried and have resulted in important products shared by participants in the agreement, but for one reason or another these agreements have been permitted to lapse. The fiercely competitive nature of pharmaceutical operations, the threats of anti-trust action and the immense returns sometimes following a research strike all work against cooperation; increasing costs and an eternal shortage of top research talent press for it. Cooperation now exists between American and European companies; where a number of commercial organizations participate in fundamental academic research; in the Government cancer program. It may not be altogether a pipe dream of the future to visualize a profit-making pharmaceutical research organization with both centralized and de-centralized facilities, started by capital and personnel contributed by corporate stockholders who would provide the governing board of directors. Discoveries could be licensed to participants, the licensing fee perhaps related to the original participation, and the research corporation could be projected as being self-supporting and paying dividends on royalty income. Since the organization would neither manufacture nor merchandise its products and should not concern itself with dosage form applications, much room would be left for competition along present lines. The current industry research budget of more than $130 millions annually, used in concentrated and non-duplicated form might well produce multiple results.

Soap and Synthetic Detergent Sales

Sales of soaps and synthetic detergents, for the first nine months of 1958, totalled 3,091,637,000 pounds valued at $786,966,000, according to reports submitted by sixty-eight manufacturers to the Association of American Soap & Glycerine Producers, Inc. Tonnage sales were 1.7 per cent under the first nine months of 1957. Sales increased 3.4 per cent in value over the same period of 1957.

Sales of synthetic detergents, accounting for 72.8 per cent of the total market, amounted to 2,251,510,000 pounds valued at $554, 977,000, up 1.2 per cent over 1957 in tonnage and 6.9 per cent in dollar value. Sales of liquid detergents, showing a continuing growth in popularity, totalled 329,584,000 pounds, an increase of 29.1 per cent over the first nine months of 1957. Dollar sales of liquid synthetic detergents were up 31.2 per cent.

Soap sales for the first nine months of this year amounted to 840,127,000 pounds, off 8.7 per cent from the corresponding period of 1957. Dollar sales totalled $231,989,000, down 4.1 per cent from the first nine months of 1957.

Vitamin B_{12} Licensing

Merck & Co., Inc. and the E. R. Squibb & Sons Division of Olin Mathieson Chemical Corporation have settled long standing patent litigation between them involving vitamin B_{12} concentrates.

In the settlement agreed to by the two companies, Squibb will account to Merck for past infringement and Merck will grant to Squibb royalty bearing licenses for the production and sale of vitamin B_{12} concentrates.

Under consent judgments, Squibb has acknowledged validity and infringement of Merck U. S. product patent 2,703,302 relating to vitamin B_{12} concentrates and U. S. patent 2,530,416 relating to processes for making them.

Although a suit charging infringement of the process patent had been instituted, the case had not come to trial. Merck U. S. patent 2,563,794 relating to crystalline vitamin B_{12} was not involved in the litigation.

The New York Academy of Sciences

Hilary Koprowski will be the president of the New York Academy of Sciences for 1959, succeeding Boris Pregel; the president-elect, taking office for 1960, is M. J. Kopac. Vice-presidents will be Lyle Borst and Cornelius P. Rhoads, corresponding secretary Frederick Y. Wiselogle, recording secretary Emerson Day, treasurer Gustav J. Martin. Councilors will be E. L. Tatum, John E. Deitrick, Robert S. Morison and Charles W. Mushett.

The former structural organization of the Academy in seven sections and one division has been changed to accommodate four sections and ten divisions. The new Academy organization consists of the section of biological and medical sciences with divisions of anthropology, instrumentation, mycology and psychology; the section of chemical sciences with the division of biochemistry; the section of geological sciences with the division of oceanography and meteorology; the section of physical sciences with divisions of engineering, mathematics, nuclear physics and space research.

In the past year, 26 conferences were held on a variety of scientific subjects, attendance totaled 7,325 and 698 papers were presented. Membership in the Academy increased to 16,017, seven foreign scientists were elected to honorary life membership and 65 Americans were given titles of Fellows of the Academy.

U. S. Vitamin Stock Dividend

Stockholders of U. S. Vitamin Corporation approved a proposal to distribute one additional share of common stock for each share now held. They also approved changing the company's name to U. S. Vitamin and Pharmaceutical Corporation.

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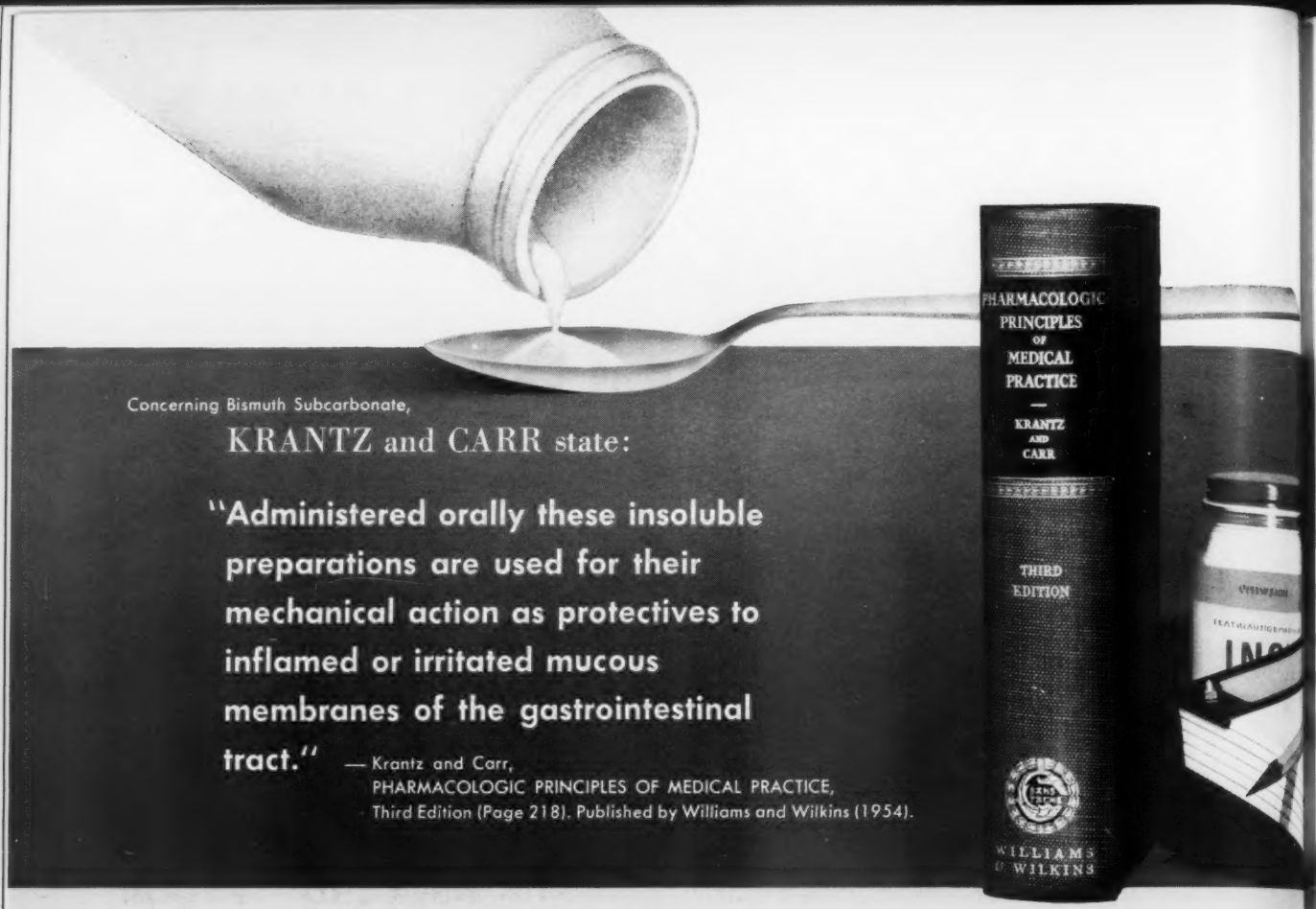

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SCC ANNUAL MEETING 1958

Record attendance during the day sessions and in the evening, reflected the success of the annual meeting, reception and dinner dance of the Society of Cosmetic Chemists.

The technical sessions at the Statler Hilton Hotel in New York City, arranged by Dr. Richard K. Lehne, included papers by Dr. Glen C. Finger of the Illinois State Geological Survey on "Notes on Aromatic Fluorine Compounds;" Dr. S. G. Knight of the University of Wisconsin, "The Therapeutic Potentialities of Triglycerides;" Dr. L. S. Fosdick of Northwestern University on "Theoretical Aspects of Caries Control with Dentifrices and Mouthwashes." Robert L. Goldemberg of Shulton, Inc., discussed "Hair Colorings—Modern Formulation Considerations;" R. J. Meyer and L. Cohen of B. F. Goodrich Chemical Co. presented a paper on "The Rheology of Hydrophilic Polymer Solutions as Related to Suspending Ability;" Dr. James Oldshue of Mixing Equipment Co., Inc., covered "Fluid Mixing of Cosmetic Formulations" and Edward Temple of Plax Corporation discussed "High Density Polyethylene Bottles."

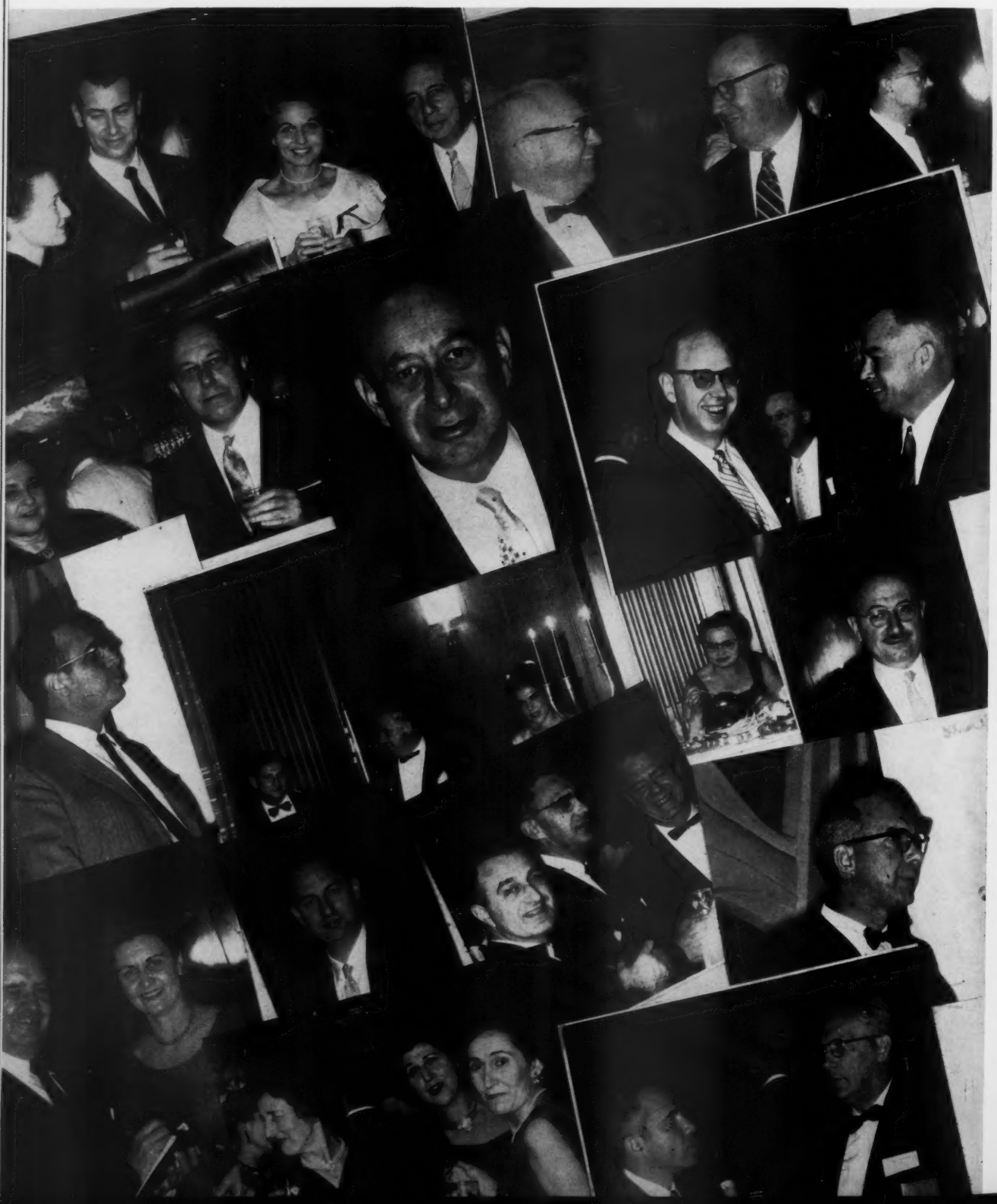
Luncheon was attended by 331 members and guests and was followed by a short talk by the society president, James H. Baker.

The reception was followed by a dinner dance at the hotel, with a talk by Dr. Albert M. Kligman. The session ended with the transfer of office from James H. Baker to Savery F. Coneybear, president for 1959.

G. C. Finger of the Illinois State Geological Survey, discussing aromatic fluorine compounds, emphasized that aromatic fluorine chemistry challenges the imagination of the chemist to create new and exciting products through skillful blending of unique and superb properties. Substitution of fluorine for hydrogen results in very little change in boiling point; decreases in surface tension, refractive index and heat of vaporization; and increase in vapor pressure. Fluorine may have an unexpected effect upon

other groups in the molecule, and odor may become more pronounced or pleasantly blended, or disappear. Toxicity data are insufficient, some compounds being more toxic, other less so than their chloro analogs. Useful data are resulting from studies of fluorinated cortisones, tranquilizers, anticancer agents, fungicides, herbicides, and insecticides.

The paper on the rheology of hydrophilic polymer solutions as related to suspending ability, by *L. Cohen and R. J. Meyer* of B. F. Goodrich Chemical Company, introduced a new mechanism for obtaining permanent suspension. Permanent suspension results when the water phase exhibits a critical minimum yield value irrespective of the apparent viscosity. The calculated minimum force per unit area necessary to suspend these materials permanently is



shown to be very closely related in actual experience to the physical measurement of yield value with the Brookfield Viscosimeter.

"Yield Value" is associated with "plastic" flow behavior. This is shown to be a very rare occurrence in "solutions" of the most widely used natural and synthetic gums. Of all the polymer "solutions" evaluated, Carbopol 934 is unique in exhibiting high-yield value at low concentrations.

Robert M. Goldemberg of Shulton, Inc., discussing modern hair coloring formulation, enumerated the factors controlling hair dye performance. The factors important in obtaining new effects are the sensitivity of various hair dye solutions to *p*H; the use of sequestrants; the partition ratio of certain dyes between

(*Continued on page 820*)

BACTERIAL RESISTANCE

BY JERE DANIEL NOYES & SPROUL, INC.

Infections that are no longer responsive to penicillin and other antibiotics are "reaching serious proportions."[1] Cross infections within hospitals may be the most serious current communicable disease problem."[2] The dissemination of pathogenic bacteria from the hospital nursery to the community has "serious public health implications." "Young children are now carrying penicillin-resistant staphylococci with an alarming frequency," two and a half times as frequently, in one study, as are older children.[4]

These comments are typical of hundreds in recent medical literature. The American Medical Association, the American Hospital Association, the Public Health Service, and the National Research Council have noted the situation and formulated recommendations. The problem of drug-resistant bacteria has, in fact, attained world-wide dimensions.[1, 3, 5]

Although attention is currently focused on the "epidemic strains" of *Staphylococcus aureus* encountered in hospital outbreaks, the problem of resistant infections has far-reaching implications beyond the characteristics of a single bacterial species.

Mycobacterium tuberculosis, as an example, retains a remarkable ability to adapt to drugs, administered singly and even in combination.[1]

Infections due to gram-negative bacteria have shown a marked increase since the antibiotic era began. They were the predominant cause of wound infection on one surgical service. Complications due to these organisms include pulmonary infections in children and fatal bacteremias.[6] Highly resistant proteus and pseudomonas organisms become established in the urinary tract during antibiotic therapy and tend to invade already damaged tissue.[7]

What is Resistance?

Microorganisms may display resistance to the harmful effects of dyes, heavy metals, ultraviolet radiation, bacteriophages, antibodies, or the leukocytes that seek to engulf them,[8] but resistance as it concerns us here implies ability to survive and reproduce in the presence of antibiotics and chemotherapeutic agents.

How Antibacterials Act

Among the antibacterial drugs employed in the therapy of infectious disease are some of microbial origin. They are excreted by one organism in order to inhibit other organisms. Accordingly, Waksman in 1947 named these substances the antibiotics.[9]

Other antibacterial agents, not found in nature, are synthesized in the laboratory, and these include the sulfonamides, isoniazid, and the nitrofurans.

Such antibiocrobial drugs interfere with some essential steps in the life process of sensitive organisms in a way that is not always clear. However, development of resistance to one agent may be accompanied by cross-resistance to others, especially those of similar chemical structure.

Chemotherapeutic agents must be effective against the parasite at concentrations that can be tolerated by the cells of the host.[9] This range of toleration varies from the minor side effects experienced by an occasional patient, to degrees of toxicity which may restrict a drug's usefulness for topical application except in grave emergencies in which no other agent is effective.

Penicillin interferes with the formation of cell walls, which exist in bacterial but not in mammalian cells. It is bactericidal to susceptible strains of growing bacteria. Streptomycin is bactericidal, but its mode of action is uncertain. Chloramphenicol, a bacteriostatic agent, blocks protein synthesis in bacteria. The tetracyclines, also generally regarded as bacteriostatic,[9] may block the anaerobic pathways of sensitive staphylococci.[10, 11]

The bacteriostatic action of a sulfonamide depends upon its role as a spurious metabolite. Competing with para-aminobenzoic acid, the drug attaches itself to an enzyme and blocks an essential metabolic reaction in bacteria for whose nutrition PABA is a required vitamin.[9]

Isoniazid penetrates the cells of the host and acts against intracellular tubercle bacilli in a way not yet understood.[9]

The nitrofurans are bactericidal rather than bacteriostatic. Their mode of action appears to be unique and different, since organisms that become resistant to other drugs remain as sensitive to the nitrofurans as the parent strain. It is difficult to pin-point the locus of action, but it appears that the introfurans owe their action either to the ability to block one or many different microbial enzymes.[12]

Theories of Resistance

Studies of staphylococci obtained before penicillin was used indicate that about 10 per cent were resistant to the drug.[13] Today, by contrast, some 75

per cent of the strains found in hospitals are penicillin-resistant, while half or even more are also resistant to the tetracyclines.[1, 13] The more a particular antibiotic is used, the more strains appear to be resistant to it.[14] Penicillin-resistant staphylococci are less frequent among outpatients than among inpatients, and less frequent still among the general public.[1] Staphylococci collected from natives in an isolated part of New Guinea were all sensitive to antibiotics.[15]

How does resistance develop? The concepts of natural resistance and acquired resistance afford a beguilingly simple starting point. Natural resistance presumably dates back to the pre-antibiotic age; acquired resistance has somehow developed since sulfanilamide and penicillin were discovered.

Certain bacterial species are naturally resistant to a particular drug, as are the gram-negative rods to penicillin. When susceptible organisms are suppressed by an antibiotic, resistant species survive and may rise to dominance.[1] The question may occur, whether "natural" resistance has always been present or was acquired as a result of exposure to antibiotic substances that were present in the environment in ages past.

The distinction between natural and acquired resistance becomes more subtle when sensitive and insensitive strains of the same organism are encountered, as with *Staphylococcus aureus*. Are the resistant strains descended from the postulated 10 per cent that were naturally resistant before penicillin came into the hands of man? Or do they come of a sensitive strain that has acquired resistance from latter-day drug contacts?

Perhaps both processes are involved, and then the question is one of their relative weight. Howe sees no evidence of increased virulence of hospital staphylococci, but does see the distinct possibility of a wider prevalence of the same virulent strains which always were pathogenic for man.[16] To Davis, the evidence favors the view that these staphylococci, as well as the gramnegative rods, are wild-type organisms, already present in the pre-antibiotic era but now become more prevalent.[9] On the other hand, Knight and his associates believe that most drug-resistant staphylococci now plaguing our hospitals are of genetic origin, arising as mutants and then being selected by exposure to the drug.[13]

In *Staphylococcus aureus*, mutant cells resistant to penicillin occur about once in 10 million times.[8] The drug, if present, provides a selective environment in which only such drug-resistant mutants can grow.[9] Thus, the mutant, despite seemingly unfavorable odds, has an opportunity to rise to dominance in the colony with the rapidly passing generations. However, full-blown resistance developing in a single patient in the course of treatment is believed to be the exception rather than the rule. It can seldom be demonstrated except with *Staphylococcus aureus* and *Mycobacterium tuberculosis*.[14] And, even with *Staphylococcus*, cross-infection may well play the major role in the resistance problem since, if independent mutants established themselves frequently, the number of bacteriophage types would be larger than it is.[17]

Lattimer *et al.* believe that the evolution of resistance results from the gradual accumulation of mutants in the hospital's pool of microorganisms rather than from a new mutation in each clinical case.

The high resistance that develops to streptomycin and isoniazid in a single stage is in contrast with the more common step-wise acquisition of resistance by grades that differ with the antibiotic and the bacterial species.[14]

Can drug resistance be acquired without mutation? Within a limited range, bacteria are capable of physiologic variation in response to a changed environment. Salmonella cells fail to develop flagella in the presence of phenol; in altered media, however, these processes reappear in their progeny. Some bacterial cells possess latent enzyme systems that are activated by a specific substrate, as when certain strains of *Bacillus cereus* attack penicillin by producing increased amounts of penicillinase.[8] But, as this property is heritable, the resistance *potential*, at least, is natural, not acquired. In staphylococci, the ability to make penicillinase seems to be a property of naturally resistant strains; originally sensitive strains that become resistant to penicillin are not penicillinase producers.[1]

Bacteria not actively growing are relatively resistant to penicillin.[19] Antibiotic-resistant staphylococci dissimilate carbohydrate under more aerobic conditions than do sensitive organisms.[11] Resistance may be associated with a decreased permeability of the bacterial cell or with the production of an enzyme with a lessened affinity for the inhibiting drug.[9]

Degrees of resistance range from tolerance for increasing concentrations of a drug to actual dependence on it. Only a part of the drug-blocking mechanisms involved in resistance is known or even surmised as yet.

Resistant Infections

"It appears that the plagues of the future will be the chronic infections of the respiratory tract, the urinary tract, the intestinal tract, and the skin," predicted Dowling and his associates at the University of Illinois some four years ago. Among signs of the times they noted gram-negative rods multiplying during penicillin therapy in pneumococcic pneumonia and then continuing the infection, highly recalcitrant urinary infections, staphylococcic dysentery appearing after tetracycline-sensitive organisms were suppressed in the intestinal tract, and a rising fatality rate for staphylococcic septicemia.[20]

The respiratory flora appearing during intensive

(*Continued on page 800*)

THE CHEMISTRY OF HAIR CURLING

BY D. H. POWERS, PH.D. WARNER-LAMBERT RESEARCH INSTITUTE

The curling of hair has become an important process to most women, since nature rarely endows a woman with really "naturally curly hair." While many women have some curl in their hair, fewer than ten per cent have really curly hair or retain the curls of their youth. It is, of course, a sad commentary that, when nature endows women with kinky hair, they then want to straighten it and take out these kinks—a process which is much more difficult than putting a curl in straight or slightly wavy hair.

Hair Structure

It used to be thought that oval hair was curly, while straight hair was round, but we now know that the shape or cross-section of hair will not tell us about its degree of curliness. More recently, some excellent research in Japan, England, Australia and the United States has indicated that hair fibers may consist of two components, an ortho and a para keratin, which may contribute to the curling of the hair; it certainly explains some of the kinkiness of wool. Mercer of the Royal Cancer Hospital in London discusses the fine structure of hair in a really outstanding article in the *Textile Research Journal.*

Hot Waving

Modern hair curling or waving by the use of chemicals to produce a "permanent wave" is attributed to Nessler, a London hair dresser, who wound the hair on a mandrel, dampened it with a dilute alkaline solution, and then heated it. It took all day to give a wave and, sometimes, the hair came off with the heated mandrels. Sodium bisulfite or mixtures of sulfites and carbonates came to be widely used for hot waving and, somewhat later, sulfites with ammonia or amines were used. The methods of heating without damaging the hair were widely studied, and a large variety of heating pads for each individual curl was developed.

Cold Waving

In the field of cold waving, or waving without heat, sodium bisulfide gave excellent results, but its odor and the report of a death attributed to the use of this compound put an end to its use in this field. The thioglycolates marketed as early as 1941 for cold waving have taken over in the past fifteen years and completely dominated the 'cold waving' market, both in the beauty shops and in the home.

Chemicals for Cold Waving

Thioglycerol was extensively studied and patented for cold waving but was considered too hazardous for the home market. The thioglycolic amides have had a limited use, but their marketing seems to have decreased. While many waving agents have a reducing action, it does not follow that reducing agents necessarily wave hair. Benzyl mercaptan has been used to wave hair, but mercaptosalicylic has no appreciable action. Hydrosulfite ($Na_2S_2O_4$), a strong reducing agent, has never found commercial application. The alpha and beta mercaptopropionic acids are satisfactory waving agents, but thiourea appears to be ineffective. Hypophosphites do not seem to wave

at all, and thiosulfates must be heated to have any noticeable effect. The extreme toxicity of potassium cyanide, an excellent waving agent, has kept it in the laboratory. While borohydrides have some waving action, their stability is a real problem.

Factors Affecting Curling Action

It is evident that the reducing action of known waving agents contributes only part of their effect. Certainly, minimum concentrations are needed to get waving action, and certain *p*H's are critical. Then, too, waving with thioglycolates in the absence of air is very unsatisfactory. Of course, hair damage is frequent from use of strongly alkaline salts, and it is probable that the waving action of many a compound is obscured by its damaging effect. It is also true that penetration of the hair shaft is extremely important for any satisfactory waving agent. At the present time, the alkaline salts of thioglycolic acid have substantially all of this market. They are generally used at a *p*H of 9.0 to 9.5 and at a concentration of 4 to 8 per cent. Their swelling action is extremely important, and this is due in part

to their reducing action. On the other hand, the ammonium or amine salts are far faster in their action than the potassium or sodium salts at the same *p*H. At a *p*H of 12.0, the thioglycolic acid salts are excellent depilatories, since the highly swollen and softened hair is easily destroyed by the high alkalinity.

Mechanism of Hair Waving

In the curling or waving of hair with thioglycolate salts, it is probable that swelling or softening of the hair results from a reaction between the "thio" and the hair keratin. This combination is readily swollen in alkaline solution, and the swelling rate increases with temperature and *p*H. The so-called neutralizing of the waving lotion is actually a deswelling and hardening action resulting from an oxidation under acid or alkaline conditions. This neutralizing causes splitting of the waving lotion-keratin reaction product, and the timing of the winding and unwinding must be carefully correlated with this softening or waving and hardening or neutralizing process. Usually the hair is softened and swollen with the thioglycolate and then tightly wound on a curling rod of a small diameter; the smaller the rod, the tighter the curl. The wound curl is again softened and swollen with additional thio and allowed to stand for ten to forty minutes. While the hair is still tightly curled, the "thio" is generally removed with water as thoroughly and as completely as possible. The hair (still on the curling rods) is neutralized with a mild, safe, oxidizing agent, such as dilute aqueous sodium perborate, sodium or potassium bromate, or hydrogen peroxide. These mild oxidizing agents effect a hardening or setting of the curl in five to fifteen minutes. If the hair is unwound and combed out before neutralizing, any curl will, of course, be lost. If no oxidizing agent or neutralizer is used, the hair will slowly harden if kept moist and exposed to the air for four to six hours. This slow air-hardening process is sometimes called the "no-neutralizer" process, since no chemical oxidizing agent is used.

The formation of a curl in hair depends on these three steps, run in the proper sequence: (1) curl or wind hair on proper curler; (2) soften or swell hair with alkaline thioglycolate; and (3) harden or neutralize the softened hair, still on curlers, with a mild oxidizing solution or by very slow gradual air oxidation.

Interest in Simpler Process

In spite of the extensive research of many laboratories and the tests of hundreds of compounds around the world, the same chemical used fifteen years ago remains the only compound used for chemically curling hair. The necessity for careful tight curling of the hair and controlled chemical processing conditions makes the demand for a simple, easy curling process a constant one. All too frequently a simple hair spray is claimed to curl hair, even though it is unlikely that a microscopically thin film on the surface of the hair could do more than affect surface luster.

Role of Swelling

That swelling is extremely important in hair curling is best demonstrated by Tables 1 and 2, which show that hair swells best at the *p*H, time and concentrations that also give the best curls or waving action. It should be remembered that swelling is not the only factor in hair curling, just as reducing action does not explain the whole action. It is interesting to note that good waving action is obtained from thioglycolate only under conditions as outlined in these tables, which show more than 100 per cent swelling.

(*Continued on page 806*)

SOCIETY OF GERMAN COSMETIC CHEMISTS
International Congress 1958

Under the auspices of the Society of German Cosmetic Chemists, an international congress was held in Bonn from September 12 to 15. Among the 250 participants were chemists and dermatologists from the cosmetic industry and the universities, and representatives of the perfumery industry and its suppliers. Sessions were held at the university for four days.

After each paper, discussion was general and vigorous and resulted finally in better understanding between academic and industrial investigators. The coming together of cosmetic chemists in an international federation was the subject of much discussion and its realization was brought nearer.

The University and Municipal authorities provided the congress with a worthy setting. Social arrangements in the Koenigshof and on the Petersberg gave a special holiday flavor to the sessions.

The SGCC, which has been in existence for barely a year, (although the membership already exceeds the hundred mark), organized the congress. Since its foundation it has been working in closest contact with sister societies in the USA and England, in Switzerland and Denmark, and with cosmetic chemists in countries where similar organizations do not exist. From the beginning, it has worked in close contact with the German Fat Institute, which has always been especially concerned with cosmetic chemistry in Germany, and with the German Society for Esthetic Medicine, in which dermatologists interested in cosmetics are grouped.

The SGCC has undertaken to promote research and teaching as well as the technical development of cosmetic chemistry and related fields of study; it has also undertaken to sponsor personal contact and the mutual exchange of ideas among chemists engaged in cosmetics and perfumery and to raise the status of cosmetic chemistry generally.

Hair

The nature and origin of substances extracted from hair by means of water and alcohol were examined by *Dr. H. Freytag.*

The peptides found in the extracts are obviously derived from the hydrolysis of keratin by water and heat. The higher the temperature the greater the quantity of peptides and the more they resembled hair in their composition. This phenomenon is also to be expected from drastic cosmetic treatment such as waving etc. The permanent partial hydrolysis of hair seems to be a factor responsible for losses which can never be completely avoided.

The sodium salts of thiosulfuric acid esters, "Bunte salts," react with mercaptide ions to form disulfides and sulfite. The reaction is considered by *Dr. A. Schoeberl and G. Bauer* as a reversal of the so-called disulfide/sulfite reaction.

The mercapto groups produced by specific reduction of the cystine-SS bridges in hair also reacted in the alkali range with mono- as well as with bifunctional "Bunte" salts.

Chemical investigations showed that the SS-bonds in all modified hair had especially high reactivity. Experiments on the formation of permanent waves indicated that the reaction between di- Bunte salts and reduced human hair may be of practical interest in hair waving.

The report by *Drs. A. Schoeberl and H. Graefje* was concerned with the results of kinetic experiments in which use was made of a series of unsymmetrical and cyclic disulfides, prepared for the first time.

According to these experiments the so-called reduction of disulfides with mercaptans constitutes a nucleophilic reaction of mercaptide ions with disulfides. The reaction takes place in stages. In contrast with earlier observations it was established that unsymmetrical disulfides in decidedly finite concentrations appear in intermediate stages and are present in the equilibrium.

Disulfide exchange reactions in the narrower sense were encountered in attempts to prepare pure unsymmetrical disulfides. The observed phenomena permit only one conclusion; both unsymmetrical disulfides and disulfide mixture are, thermodynamically unstable.

The types of reaction discussed are fundamentally of great importance in biology. There are, however, several consequences of importance to those dealing

with problems of hair cosmetics. This group of questions was discussed in detail.

The various possibilities of interaction between keratin fibers and dyes were discussed by *S. Preisinger* in the light of the photomicrography of hair. In hair dyeing the morphological structure and condition of the fiber plays a lesser part in the absorption of dye than other changes of state which the hair undergoes in the course of rinsing.

The motion picture record of the action of dye on hair cross sections, shows clearly the sequence and interaction of hair swelling, diffusion of solvents, penetration of dye components, dye formation by oxidation and rinsing. The technique also clarifies the differential reaction to dyeing of hair which has been normally rinsed, given preliminary cosmetic treatment or damaged either mechanically or by ultra violet radiation.

Fragrance

As a contribution to the knowledge of the influence of bases on perfumes, olfactory tests were devised by *Dr. J. S. Jellinek*. Many perfumes smell much more strongly in aqueous solution than in mineral oil, while for others the relationship is reversed. Numerical values were ascribed to the perfumes according to a system in which a higher value indicated a relatively high intensity of odor in water and a lower value of relatively high intensity of odor in mineral oil. In addition the apparent intensity of odor of some of these perfumes was determined when they were worked into emulsions (mineral oil in water and water in mineral oil). A further investigation showed that the presence of non-ionic emulsifiers had little effect on the intensity of odor in phenol odorants.

In epicutaneous tests, perfumes in 1.2 per cent concentrations were incorporated in a W/O emulsion and tested on areas of the backs of men and women with healthy skin by *Drs. H. C. Friederich and P. Witjens*. Thirty such men and women, from 20 to 40 years of age, were used in each experiment. Skin tolerance of the tested substances was generally of interest. The object of the study was principally to observe the irritating effect of the odorants. In a minority of cases the sensitizing effect was studied.

Prochamazulene is characterized by sesquiterpene derivatives with a guaiene basic skeleton structure, in which a lactone ring is present according to *Dr. V. Herout*. The group of lactones of this type was named guaiolides.

True prochamazulene a rather unstable substance which is converted into chamazulene when distilled with steam. Of known substances, matricin from true camomile and artabsin from wormwood belong to this group.

The remaining guaiolides, which can also be described as pseudo-prochamazulene, are rather stable and are converted to chamazulene only under drastic conditions, e.g. dehydration.

The structure of a whole series of these lactones was determined. Most of these guaiolides show very different pharmaco-dynamic and organoleptic effects. The well-known anti-inflammatory effect is a property only of chamazulene and not of its preliminary stages.

In the scientific preparation of cosmetics it is necessary to study the effects upon the skin of all the raw materials used including the pharmacology of the essential oils, according to *Dr. K. H. Thomas*.

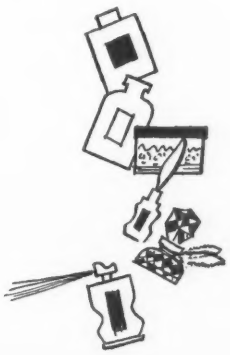
The action of the essential oils is often many-sided and the manner of their absorption through the skin and mucous membrane varies. Although the essential oils are more difficult to absorb from ointment bases than the true oils, they make useful carriers for medicaments.

Essential oils generally have a bactericidal or bacteriostatic effect, which may be more powerful than that of phenol and is still observable even when they are diluted.

In their concentrated state the essential oils produce hyperemia and irritation of the skin even to the extent of causing inflammation and blistering. Terpenes and aldehydes are responsible for this. When diluted, however, the essential oils do not irritate a normal skin.

Oils containing azulene have an anti-inflammatory effect. Some oils have anesthetic properties.

(*Continued on page 806*)



Perfume Formulation

THE ROSE GROUP

BY J. R. ELLIOTT PERFUME & FLAVOR CONSULTANT

Most people think of a rose as "a rose," without realizing that literally thousands of rose hybrids have been developed, each with its own special shape, color and particularly fragrance.

A fundamental scent is apparent in all rose blossoms, but there are more variations on this scent among the various species than in any other flower. The rose plus the odor inflections of lemon, raspberry, strawberry, jasmin, carnation, cinnamon, lavender, musk, tuberose, and soon, as well as their cross combinations, produces variations extending almost ad infinitum.

The world famous rose garden of the Jackson-Perkins Company, Newark, New York, with its acres of display roses of every conceivable kind, is a veritable hunting preserve for the perfumer in search of rose fragrances, especially during the June peak of the rose-blooming season.

The rose fragrance, the "sugar" of perfumery, is of immense importance to the perfumer because of its ability to introduce a sweet, flowery effect.

Rose compositions are the most extensively used group in perfumery for three reasons: analytically, because there is better knowledge of the chemical constitution of the rose fragrance than for any other flower; practically, because the rose group has the best assortment of synthetic materials available for the accurate reproduction of the rose fragrance; economically, because enough materials exist to allow the creation of a rose odor with a fair degree of fidelity, even in the low-priced range.

ROSE

The rose group is peculiarly fortunate in the availability of synthetic chemicals for the production of the rose fragrance. Rhodinol, citronellol and geraniol, and their esters, have been identified as prominent components of natural rose isolates. These three rose alcohols are readily obtainable from essential oils of non-rose origin. Phenylethyl alcohol is easily synthesized at a low cost. Esters of these products are, of course, conveniently made.

Synthetic research has developed other materials of considerable interest which have never been identified in natural rose products. Dimethyl octanol (made by hydrogenating geraniol or citronellol) and its esters have an excellent note of rose otto. Citronellyl oxyacetaldehyde (which has both an ether

and an aldehyde grouping) possesses a strikingly pungent rosaceous note very useful for "livening up" rose compositions. Hydratropyl alcohol (a subtituted phenylethyl alcohol) provides a deep rose petal note actually much more attractive than phenylethyl alcohol in special rose effects. Research in the field of long, branched-chain alcohols and ketones is showing promise in the discovery of new rose-like odors that may eventually displace the conventional rose alcohols.

It is interesting to note that rose-like odors can be derived from such unusual and unrelated materials as benzophenone, tri chlormethyl phenyl carbinyl acetate, and phenyl dimethyl carbinol. Even the simple halide, chloroform, when diluted resembles the rose.

Chemically, it is interesting to compare the odor nuances produced by varying degrees of unsaturation in the three similarly odored rose alcohols, geraniol, citronellol and dimethyl octanol, which are structurally identically except in their degree of unsaturation. Dimethyl octanol, a branched-chain alcohol isomeric with normal decyl alcohol, is sweet and inclined towards the rose otto. The normal decyl alcohol (the perfumer's alcohol C-10) has an intense orange-like note entirely different from the branched-chain dimethyl octanol. This branched chain structure is associated with the rose odor when applied to aliphatic alcohols other than decyl.

Following are the principal rose components:

Basics. Rhodinol, citronellol, geraniol, dimethyl octanol, hydratropyl alcohol, phenylethyl alochol, phenyl dimethyl carbinol, terpeneless oil of geranium (French, Algerian, or Bourbon).

Blenders. Oil of palmarosa, cinnamic alcohol, terpineol, guaiac wood resin, guaiac wood acetate, oil of lemon, oil of bergamot, oil of bitter orange, linalool, phenylethyl dimethyl carbinol, tolyl alcohol, phenylpropyl alcohol, phenylbutyl alcohol, isobutyl phenylacetate, hydratropyl dimethyl octyl ether, citronellyl methyl ether, nerol, methyl phenylacetate, ethyl phenylacetate.

Adjuvants. Rhodinyl, citronellyl, geranyl, neryl, dimethyl octanyl acetates, propionates, butyrates and formates, hydroxycitronellal, "Cumin" ketone, alpha ionone, methyl ionone, methyl cinnamate, ethyl cinnamate, terpineol, phenylacetaldehyde, paramethyl hydratropic aldehyde, ylang absolute, ylang extra Bourbon, orris concrete, eugenol, isoeugenol, aldehydes C-9, C-11, C-12 MNA, citronellyl oxyacetaldehyde, benzyl acetate, benzyl propionate, "Veronol" aldehyde, aldehyde C-14 (peach), phenylacetic acid.

Fixatives. Phenylethyl phenylacetate, phenylethyl salicylate, phenylethyl cinnamate, phenylethyl benzoate, the hydratropyl analogues of any of the foregoing phenylethyl esters, cinnamyl cinnamate, benzyl isoeugenol, Tolu resin, benzoin resin, styrax resin, citronellyl phenylacetate, citronellyl benzoate, patchouli oil, musk ketone, musk xylol, vertyvert oil, vetyverol,vetyvert acetate, sandalwood oil, santal acetate, "Dorisyl" (Dow), "Rosottone S" (Dow), "Rosaryl" (Dow).

Naturals. Rose absolute and rose otto are the principals. Jasmin, mimosa and ylang absolutes are used secondarily for special nuances. Actually, any of the floral absolutes can be used as long as they are compatible with the rose species type being designed.

Following are a few basic formulas that may be embroidered upon to create interesting rose effects:

BASIC ROSE E.022

10	Phenylacetic acid
10	Benzyl propionate
10	Isobutyl phenylacetate
15	Oil lemon California
15	Hydratropyl alcohol
20	Isoeugenol
20	Methyl ionone
20	Palatone 5% (in phenylethyl alcohol)
20	Citronellyl acetate
30	Phenylethyl phenylacetate
50	Cinnamic alcohol
160	Phenylethyl alcohol
350	Citronellol

The use of Palatone in this composition is arbitrary. It produces a candy-like nuance of considerable attractiveness especially useful if the rose effect is to be developed for lipstick.

This E.022 formula is nonspecific in type, since it is designed for variation. Some of the possible variations in E.022 would be:

(1) More alpha ionone and methyl ionone, with touches of orris concrete and methyl heptine carbonate to bring in a nuance of violet;

(*Continued on page 808*)

IVERS-LEE Custom Packagers

BY GRACE McGRAW SMITH

A small sampling of the wide variety of unit packages from Ivers-Lee plants in Newark, New Jersey. Tablets, capsules, ampules, liquids, pastes, creams and powders are all custom packaged by the firm.

To the constant hum and clack of many machines, three plants in Newark, New Jersey are turning out small, custom-designed packages of liquids, powders, tablets, capsules, pastes, creams, oils and even some foods—the amount in each package measured to a fine point—and some containing specified quantities of two to three different products in as many discrete "pockets" of a single package. This prodigious packaging activity is carried on, largely for the drug and cosmetic industry, by the Ivers-Lee Company, specialists in unit-packaging engineering.

One extraordinary aspect of the operation is that all the complicated packaging machinery is designed and made by the company. This is as it should be, since Ivers-Lee began many years ago for the purpose of designing and building packaging machinery. Then, in 1921, the present corporation was founded to carry out the actual packaging, as well as to make machinery to do it.

The first Ivers-Lee package was designed and produced for a seed dealer who wanted individual seeds packaged so that the planter could put the package directly into the soil. The resulting "sanitape" unit was made of waxed paper, and farmers planted the package itself, saving themselves considerable time —the porous packet dissolved in the ground.

Then, with the advent of new packaging materials, came a multitude of new possibilities for unit packages. The company began full-fledged custom packaging, designing the packages, making the necessary machinery and filling the packages right at the plant.

Today, Ivers-Lee does about 90 per cent of the package designing for its customers, always in close cooperation with them to produce precisely the desired result. Designs are, indeed must be, conceived in direct relation to the packaging possibilities, which are best understood by those who actually make the machinery.

Formerly all package filling was done on the premises. Now, however, machinery is leased all over the world, although the machine shop remains at the Newark plant. The firm not only distributes

its packages throughout the world, it also has license arrangements with packaging firms in Canada, Great Britain and Switzerland.

Although the basic machines do not vary greatly, the feeders are widely different, in accord with the nature of the product to be packaged. A package, for instance, may contain anywhere from one to six tablets. More complex feeders can produce a double

This versatile unit can simultaneously fill the same package with any two products, and can also be used for powders and liquids. The filling machines are all designed and built by company engineers.

or a triple pack. and these may contain a specified number of tablets in one pocket and a different number of tablets or capsules in the other pockets. Or, four pockets in a single unit package can be individually filled.

Many unit packages used for samples are designed to resemble the actual container, say an apothecary jar or a tube of toothpaste. Others are designed to appeal to the retail customer, for instance, for children a train with individually wrapped vitamin tablets as its wheels. Individual servings of foods like prepared mustard or ketchup provide their own special problems, as do shampoos and powdered or liquid hair colorings. All keep the company's designers busy working out ways of preserving contents, of providing materials that remain intact despite the contents and of designing devices to give any and all packages an individual character.

Quality control is a constant concern, hence an integral part of the operation. The actual quality of some products, especially foods, must be constantly checked. This is a specific problem, however. Weight, on the other hand, is checked once every half hour on each order the company fills, by means of a highly refined mechanism that automatically records the exact weight of each sample package checked. A certain minimal leeway over or under the exact amount per package is usually allowed. A copy of the complete record of weight check is sent to the customer with every order filled.

Another form of quality control is the checking of the pressure a package will bear. This is done under water pressure, which indicates the package strength and resistance to pressure. The sample packages are placed in colored water. The amount of pressure relevant to the specific package, which will differ with its

This flexible-packaging machine has a capacity of 50,000 to 120,000 packages in an average day. Here it is shown filling a package with two square lozenges. Note filling hopper above, package rollers below.

The quality control device that automatically weighs and records the exact weight of a package. A variation of plus or minus 5 per cent is allowed on this 16-gram package. Customer gets copy of complete check.

contents, is applied; then, the packages are opened to check for any evidence of leakage of the water into them.

At full working capacity, Ivers-Lee can produce 20,000,000 unit packages a day. However, the company prefers to produce at a slightly lower rate, between 80 and 90 per cent of capacity, to allow for immediate expansion for rush jobs, of which there seem to be many.

The company prides itself on the number of basic design patents that have been granted by the U. S. Government Patent Office and by foreign patent offices. At present, nearly 90 patents are in effect for Ivers-Lee flexible-packaging machinery.

GLOBAL WAR AGAINST DISEASE*

BY JOHN T. CONNOR MERCK & COMPANY, INC.

A bazaar street at Rohri, Sind, India. Note the five-story buildings with terraces, which are characteristic of that part of the country.

Our story starts on a plane high above the Bay of Bengal at 11 a.m., Calcutta time, January 26, 1957. Two officials of Merck Sharp & Dohme International, bound for New Delhi, were reading the latest report from India, handed them early that morning at the Bangkok airport. The report contained two surprises. One was an opportunity; the other, a threat.

The opportunity was a list of drugs, just announced, that the Indian government wanted produced locally under its Second Five-Year Plan, in order to provide employment, build up native skills and save precious foreign exchange. Anticipating this development, the two officials had been sent to India by their company to try to negotiate an agreement to establish manufacturing facilities there.

A threat in the report gave them a sense of urgency: a team of Soviet experts, having surveyed India's pharmaceutical needs, was on the spot, ready with a proposal to replace Western imports with a state-owned and managed drug manufacturing industry.

Let me sketch in the background of the Soviet position. The civil war that followed in the wake of the Russian Revolution let loose a series of epidemics that killed several million persons, demoralized the country and threatened the hold of the new Communist government.

Taking stock of the human capital at his disposal, Lenin discovered that Russia's death rate was nearly twice that of the West and that the average citizen had a life expectancy of only forty years, which meant that the education and training of workers was far too expensive, and capital accumulation far too slow.

When Lenin acted on these conclusions, health became, along with education, the outstanding exceptions to the rule of human exploitation that has marked the Soviet Union since the beginning. For the past forty years, the Russians have been campaigning for better sanitation practices, public health and preventive medicine. They have been diverting scarce materials for hospitals, clinics and medical schools. And they have been turning out enormous numbers of new doctors; their current annual rate of sixteen thousand is more than twice that of the United States.

What have been the results? The number of hospital beds per thousand population multiplied four and a half times between 1913 and 1956. The per capita number of doctors jumped ten times—from about 17 for each 100,000 Russians before World War I to about 164 in 1956. The comparable figure for the United States that year was only 130. This means that in proportion to the population, which in their case is just over 200 million, the Soviet Union now has 25 per cent more doctors than we do. Though their quality is still well below ours, we cannot feel smug about the future.

This mammoth Soviet health establishment now boasts 2,750,000 employees and is one of the Communists Party's proudest achievements. The best single measures of a nation's physical well-being can be found in the mortality and longevity rates. The Kremlin recently broke its long silence on this subject and announced the figures.

The Soviet Union, the announcement said, had raised the health of its people up to the level of the West. It had slashed the crude mortality rate by about 75 per cent since before the Revolution and. by 1956, at 7.7 per 1,000 population, that rate was comparable to ours. At the same time, the average

*Abstracted from an address delivered before a conference of the International Management Division, American Management Association, in New York City.

life expectancy had been lengthened from about 40 years at the beginning of World War I to a claimed 67 years in 1956. This was within reaching distance of longevity in the United States, which in the same year stood at 69.5. This is an extraordinary achievement.

What it means is that the Bolshevik planners were right when they decided to pour enormous effort into their human capital on the theory that better health as well as better education would have to precede better output.

Because of our concentration on physical and financial capital, we are inclined to forget the importance of human capital, which is both the means and the end of industrialization. This concept of the relation between human capital and economic growth could turn out to be decisive as the Soviet sets forth to meet the rising expectations of Asia, Africa, the Middle East and even Latin America with a program of health, development and Communism.

This brings us back to the two officials in India. In common with most of the pharmaceutical industry, Merck Sharp & Dohme is no stranger to international business. It is selling today in 80 foreign countries, in 11 of which it has manufacturing plants. Out of total company sales of nearly $200 million last year, 27 per cent were outside the United States.

Merck, however, had never been up against quite the situation that confronted these two men when they arrived, after proper introductions from Ambassador Bunker's helpful staff, at the Ministry of Commerce and Industry. They were immediately confronted with two problems: first, Russian competition and, second, a danger that the Indian gover-

The Merck Sharp & Dohme International plant at Campinas, Brazil. The women shown above are filling and packaging Sucrets.

ment would build its new pharmacenutical industry in what is called "the public sector," which means that it would be state-owned and controlled.

It turned out that the Indians were glad to see these Americans. Near the top of their list were facilities for the production of streptomycin and its important derivative, dihydrostreptomycin, both of which Merck had pioneered.

The streptomycins were vital to India because they are leading drugs in the treatment of tuberculosis, which kills more than half a million Indians a year. The Director of the Central Drug Research Institute in Lucknow recently estimated, moreover, that this disease cost his nation almost a billion man-days of lost work per year.

The rout of the debilitating disease of tuberculosis, therefore, ranks high among the objectives of India's second five-year plan. To reach their goal, the Indians need, among other things, the modern drugs with which we in this country have cut our TB death rate down to about a fifth of what it was before World War II.

Just before the two men from Merck arrived on the scene, the team of Russian experts had recommended that India build a state-owned basic chemical-pharmaceutical manufacturing industry to free itself from dependence on the West. It would—

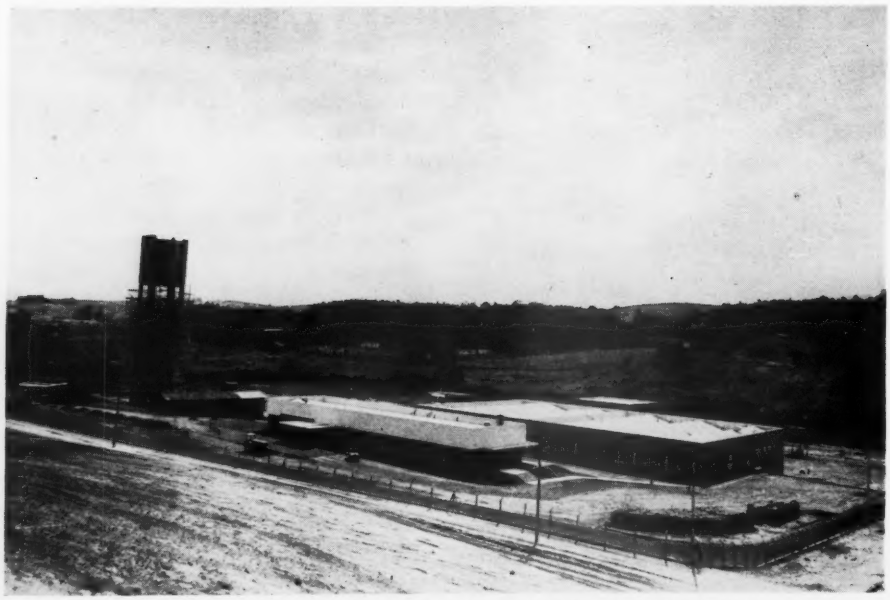
Women in the counting and filling for tablets section of the Merck Sharp & Dohme International Campinas plant, Campinas, Brazil.

though this had not yet been made explicit—be designed by Soviet engineers, financed by Communist bloc loans and, of course, be politically motivated. In this case, the mission would be to display Communism as the friend of the sick and disabled.

Within this context, the meeting between Merck and the Indian government representatives quickly produced a proposal. The Indians suggested we go into partnership with a government-owned corporation to produce a long list of needed drugs.

The Indian proposal, in the end, proved impractical from our point of view, mainly because we thought there would be too many basic conflicts of interest in a partnership with a government agency in such a broad enterprise. But we were able to offer them a creative alternative. We split the problem into two parts. The first is an agreement that was signed last April. Under it, we are now helping the Indians build what will probably be the most modern streptomycin plant in the world.

(*Continued on the following page*)



Exterior view of the Merck Sharp & Dohme International plant, Campinas, Brazil.

The plant will be owned by Hindustan Antibiotics, a government corporation already producing penicillin by the fermentation process. It will be built with Merck plans and the help of Merck engineers, and it will be operated by Merck-trained Indian technicians using Merck know-how. The needed machinery and equipment will be financed by means of a loan from the U. S. Export-Import Bank. This new plant will supply all the country's requirements for the drug at an initial saving of nearly $2.5 million annually in foreign exchange. Merck, in exchange, will receive a modest fee to be paid out of sales over a period of ten years.

Under the second agreement, which was announced early in November, Merck and a partner, the well-known Indian firm Tata Sons Private Limited, will set up a new corporation to manufacture several Merck specialties such as vitamin B_{12}, certain steroid hormones, the new Merck drug, 'Diuril,' and other discoveries as they come from Merck laboratories and are needed in India. Merck will build a basic medicinal chemical plant, and, as far as possible, use indigenous materials. The company's part of the capital investment will be about $3,500,000, and it expects to earn a resonable profit from the operations.

We may be criticized because we are helping build a streptomycin plant in the public sector. However, this is the way the Indians wanted it. They made this perfectly clear to us after we had done our best to dissuade them. We finally concluded that, if we really meant to help the Indians, we would have to help them in the way they wanted to be helped.

Furthermore, by devising our plan, we forestalled the Russians, who, in the midst of our negotiations, offered the Indians a $20 million, 40-year loan at the incredibly low interest rate of 2 per cent to finance several basic units for a pharmaceutical-chemical industry, including a streptomycin plant.

Our willingness to be flexible enough to adapt our resources to India's needs undoubtedly helped make Merck seem a reasonable company with which to do business in the private sector. The fact is, we now will build a private sector pharmaceutical and medicinal chemical plant. Other Western producers in our industry are doing the same. There is therefore a possibility that what started out to be a government-owned industry may end up being mostly in the private sector.

We are in the midst of a war that stretches eastward almost all the way around the globe. It is not a cold war; that adjective describes nothing but the absence of shooting. It is a war against poverty and disease. In the past few years, the rising expectations of the peoples of Asia, Africa, the Middle East and Latin America for a better and a longer life have become the most dynamic human force at work in the world today. Four years ago it lured the Soviet Union out of its lair and the West now finds itself pitted against the Communist bloc in a struggle to see which system can do a better job of economic and social development.

The Soviet is at least as well equipped medically as it is economically to match us in the underdeveloped countries. All its physicians and other health personnel work for the State and can be sent where the Kremlin thinks they should go, in or outside the country. The Russian doctor's training in foreign languages and his familiarity with relatively crude living and working conditions put him in a better position than his American counterpart to adapt to

(*Continued on page 814*)

Packaging and Selling

Skin Bracer and Cologne by the Mennen Company

now packaged in five-ounce opal glass decanter-shaped bottles manufactured by the Hazel-Atlas Glass Division, Continental Can Company, the oval labels by Nevins Company and gold molded plastic closures—metalized by Eyelet Specialties—by Mack Moulding. Sold singly or together in a gift package, the complete package and cartons were designed by Design Associates.

Owens-Illinois Assures You A Complete Packaging Approach

Continuing Research

Pure research into fabrication of glass, *packaging research* into processing and handling methods in customer plants, *market research* into consumer attitudes. All add up to finer packaging.

Engineered Design

At Owens-Illinois, your package's *three* needs are taken into account: 1) Considerations of its function in the retail store, 2) its operating efficiency, and 3) its consumer utility.

The Right Container

Versatility of facilities and talents make O-I your best source of supply. In container development—beauty, utility, tradition are blended in the right proportions for your product's needs.

The Right Closure

Through long and continuing research O-I has developed the most advanced metal and plastic closures. Helping you choose the right closure is another function of O-I's packaging service.

Needed Fitments

O-I specialists are keenly aware of sales benefits derived from plastic shaker and pour-out fitments which are not "gadgets" but which increase consumer satisfaction with your product.

Merchandising Cartons

Modern cartons are developed only through systematic consideration of their opportunity to serve you in the retail store and warehouse . . . as well as on your own filling line and in transit.

Your special product is sure to get more attention in an attractive custom-container . . . designed by Owens-Illinois

The custom concept of fine packaging

HERE ARE TWO EXAMPLES of an Owens-Illinois specialty—*custom-container design.* For the right product, the distinctive product, there's no wiser merchandising buy!

Designed for your product by Owens-Illinois, a custom container pays off in many ways. *More attractive,* it draws immediate attention to your product . . . *more distinctive,* it works toward positive buying action . . . *more functional,* it helps build repeat sales by protecting your product—by keeping it fresh—by making it always easy to use.

At Owens-Illinois, custom-container design is but one part of O-I's Complete Packaging Service. A large staff of experienced designers and packaging experts are ready to work with you in the development of your *complete* salespackage—stock or custom containers of all types, capacities and designs—label designs—special fitments—metal and plastic closures—proper closure liners—merchandising cartons. Everything you need for a successful salespackage!

For more information, call the Owens-Illinois branch office near you today.

DURAGLAS CONTAINERS
AN (I) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO

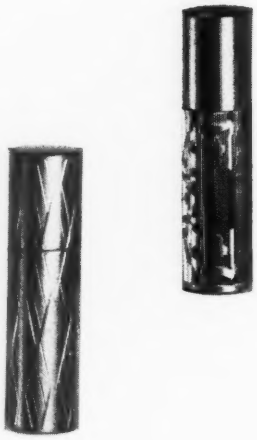
New, Sales-Enchanting
Aerosol Perfume Dispenser

RISDON

"Mini-Mist"™

Refillable Container

Holds 250 to 300 Metered Sprays



Lipstick-size (2⅞" long x ¾" diam.) luxury container refilled by changing fragrance cartridge.

Glamorous outer cases available in gold, silver & black finishes with a wide variety of opulent, machine-engraved patterns or in the elegant simplicity of smooth polished metal.

Inner cartridge holds about 2¼ drams in a seamless tube of aluminum or stainless steel topped by the Risdon patented metering valve and actuator.

RISDON'S "Mini-Mist" is the only purse-size aerosol perfume package with all components manufactured and finished by one company.

Metered Spray, Convenient Size and Corrosion-Proof features make the RISDON "Mini-Mist" ideal for aerosol *PHARMACEUTICALS*, too.

Write or phone for further information, samples and prices.

THE RISDON MANUFACTURING CO. • Naugatuck, Conn.

Quality Lipstick and Perfume Containers
and Aerosol Valves

INHALATION AEROSOLS

BY H. R. SHEPHERD AEROSOL TECHNIQUES, INC.

In the drug and cosmetic industry aerosol packaging has assumed a role of primary importance in many applications. This discussion is confined to suspensions or solutions of medicaments in pressurized containers for therapy by means of inhalation.

Pre-aerosol methods of inhalation therapy included insufflation of powders, medicament-carrying fogs in confined areas, atomization by conventional medical atomizers which produce mists containing most of the liquid in the form of comparatively large particles and nebulizations. These last can be considered as a special type of atomization in which the large particles are removed by suitable baffles in the atomizer.

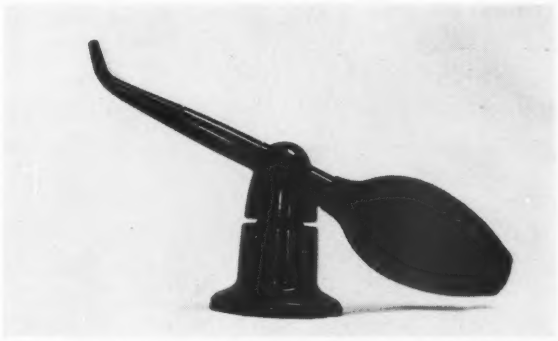
A number of therapeutic agents are currently being marketed specifically for intra-nasal insufflation. These include phenyl propanolamine hydrochloride, hydrocortisone acetate, posterior pituitary and penicillin procaine. We have illustrated various units designed to deliver medication to the nose and throat by inhalation.

Work recently done in England indicates that cold vaporization of water of increasing the relative humidity in a confined area is more effective than hot steam vaporization in softening hardened mucosa associated with congestions of the upper respiratory tract.

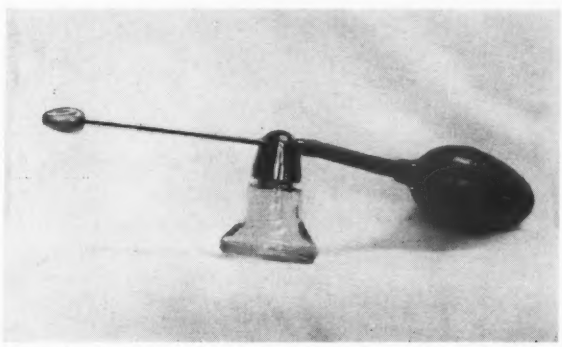
We are all familiar with the conventional atomizers used for the nose and throat with conventional nasal and throat spray products. The nebulizers are being used to achieve the effects of antibiotics and the vasodilating effects of certain medicaments for bronchial spasms. Penicillin and isoproterenol hydrochloride (1-(3′,4′-dihydroxyphenyl)-2 isopropylaminoethanol hydrochloride) have been effectively used in this manner.

Disadvantages inherent in the pre-aerosol methods of inhalation therapy are the absence of uniform dosage based on the lack of metering, and the subjective means of introducing the medication. The powder insufflators are further complicated by the generation of electrostatic charges resulting in gross agglomerates and adhesion of the medicaments and vehicle to the internal portions of the insufflator.

The first aerosols for inhalation therapy, introduced by Riker Chemical Company, certainly represented a new frontier for the mitigation and treatment of disease. Most of the pressurized products on the market today are for the treatment of hay fever, bronchial asthma and upper respiratory conditions. Riker's products include Medihaler-Epi (epinephrine) asthma relief spray, Medihaler-Iso (Isoproterenal) asthma relief spray, Medihaler-Nitro (Octyl Nitrite) for relief of angina pectoris, and Medihaler-Phen (Phenylephrine) for relief of nasal congestion. Rexall is producing the Aero-Meter Nasal Spray and Winthrop the Isuprel Mistometer.



An example of pre-aerosol inhalation therapy, above, a powder blower.

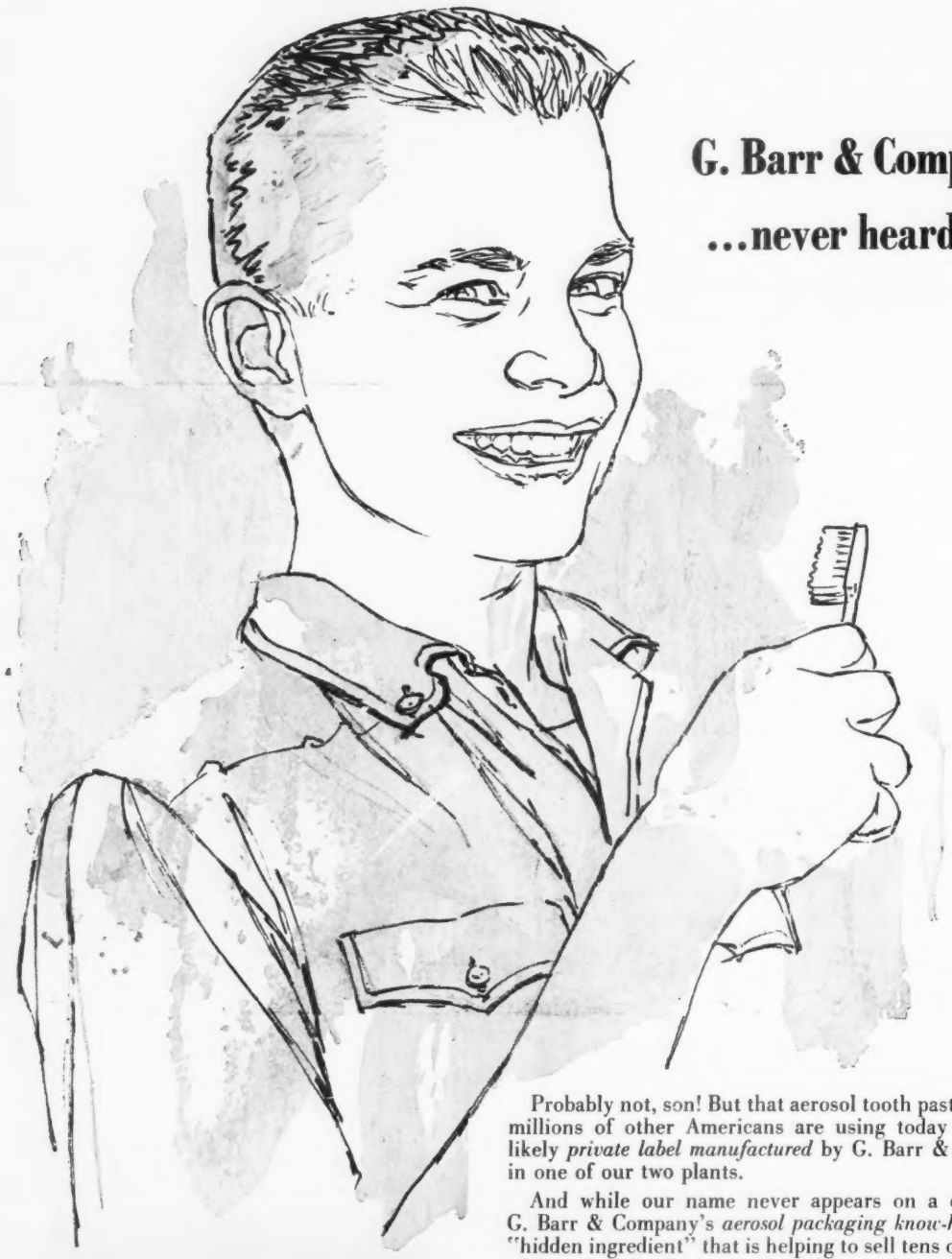


Conventional atomizer for liquids, which cannot provide uniform dosage.

The new frontier created by the introduction of aerosols for inhalation therapy is similar to the advances in medicine opened by the introduction of the hypodermic syringe. Paradoxically, there are certain types of medications which, when administered by inhalation, may displace the use of the hypodermic for the introduction of these drugs into the body. These drugs may include certain types of sera, mucolytic enzymes, and the like.

We should like to point out that serious consideration should be given to aerosolizing many drugs whose efficacy is destroyed or reduced during passage through the gastro-intestinal tract.

Those of us with a pharmaceutical background



G. Barr & Company?

...never heard of them!

Probably not, son! But that aerosol tooth paste you and millions of other Americans are using today was very likely *private label manufactured* by G. Barr & Company in one of our two plants.

And while our name never appears on a container, G. Barr & Company's *aerosol packaging know-how* is the "hidden ingredient" that is helping to sell tens of millions of America's leading aerosol products today.

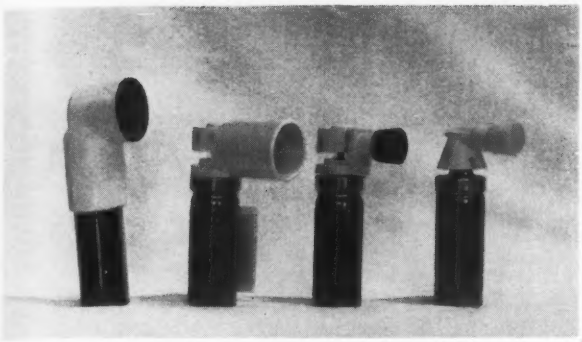
The hair spray, room deodorant, shaving cream, spray antiseptic, car polish, spray cologne and scores of other famous aerosol products found in homes all over America were in many instances developed in our research laboratories and private label manufactured by us.

Have you heard the G. Barr & Company story? Get the facts today.

G. BARR & COMPANY

Private Label Aerosols

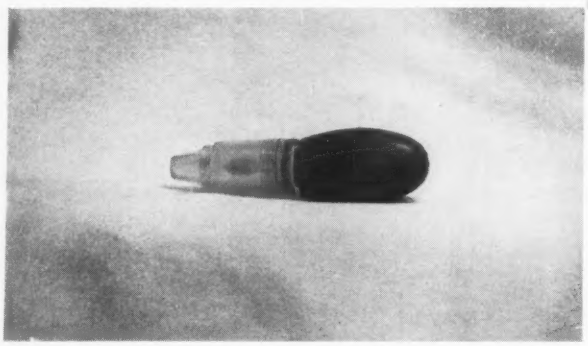
3601 SOUTH RACINE AVENUE CHICAGO 9, ILLINOIS



Pocket, metered inhalation aerosols for relief of asthma, nasal congestion.

who are interested in aerosols are understandably stimulated by the number of sound possibilities wherein the aerosolized version of the drug may replace administration either parenterally or by tablet dosage.

Almost every day in the technical and medical literature we find significant articles concerning the systemic treatment of certain diseases which could



A pocket-sized powder blower of the conventional pre-aerosol type.

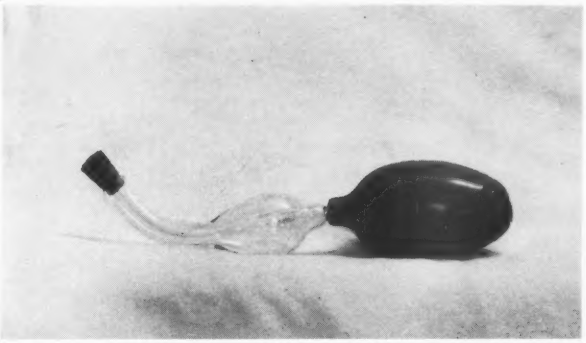
conceivably be adapted to an aerosol package with excellent therapeutic effects. For instance, tetracycline in drops, syrups and capsule form is a useful drug in the prophylaxis and amelioration in susceptible children of asthmatic bronchitis associated with infection. Side effects were neither frequent nor serious in a series of 25 such patients, only one of whom failed to benefit to some degree. Asthmatic bronchitis attacks were reduced from 34 on placebo therapy to 50 during administration of the antibiotic. It would appear that tetracycline in an aerosol package with a metered delivery merits investigation for the prophylaxis and relief of asthmatic bronchitis.

Indicative of the potential of inhalation therapy aerosols is the statistic that there are 2,500,000 bronchial asthma sufferers in the U. S. and that up to 6,000,000 doctor's visits occur annually for this reason. It is estimated that 5,000,000 prescriptions are written each year for bronchial asthma treatment. The calculation at this time is that the market for aerosols here is $6,000,000.

The following factors are involved in the consideration of a drug for inhalation therapy by means of an aerosol:

(1) The rationale of absorption of the particular medicament under consideration into the respiratory tract.

(2) The lack of toxicity of the medicament under consideration. Special emphasis must be placed on the toxicity, pharmacology, pathology and clinical investigation in proving the safety and efficacy of the particular drug.



A pre-aerosol inhalation nebulizer, which cannot provide uniform dosage.

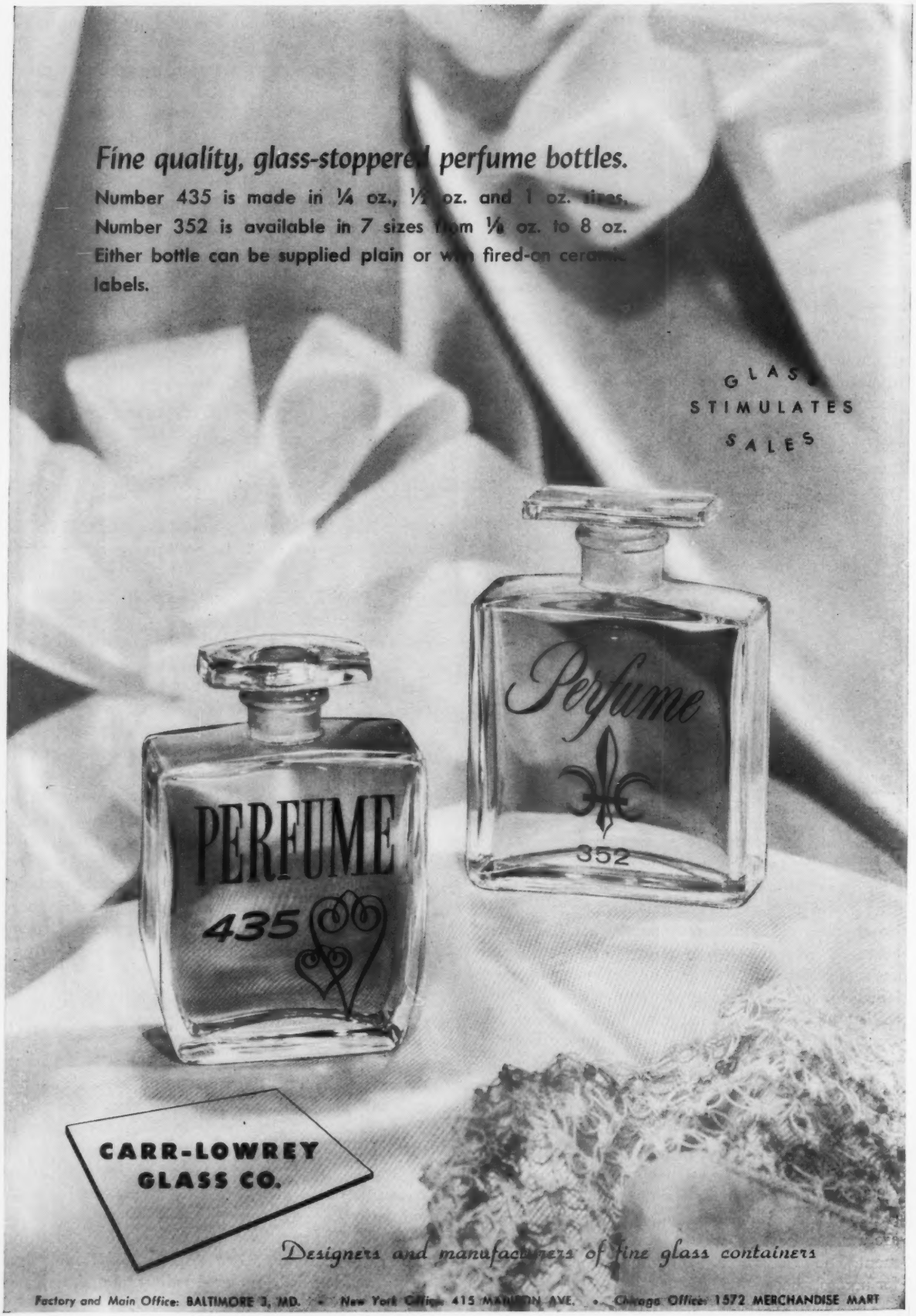
(3) Particle size of the aerosol. According to Findeisen, particles of 3 micra and above are taken out completely by the trachea, the bronchi, the bronchioles and the alveolar ducts. Particles of 1 micron radius and above are taken out by the lungs to the extent of 97 per cent with only 3 per cent recovered on expiration. As the radius of the particle gets smaller, particles 0.3 micron in radius are absorbed to the extent of only 35 per cent, with 65 per cent recovery on expiration. These conclusions of Findeisen are confirmed by the experimental work of Van Wigh and Patterson, who showed that solid particulate material of 0.6 micron radius was removed to the extent of 63 per cent while particles from 0.6 micron in radius to 2 micra in radius were removed from 63 per cent to 96 per cent. Particles less than 0.4 micron in radius were retained only to the extent of about 30 per cent.

(4) Chemical and physical stability of the solution or suspension.

(5) Solution compared with suspension of a drug. Generally it has been shown that the duration of action of a soluble drug in solution after inhalation falls off rapidly due to the quick absorption of the drug. This effect may be desirable in certain conditions. On the other hand, where sustained action is desired a suspension of a relatively insoluble drug which literally "plates out" in the desired area is advantageous.

(6) The economics of the aerosol inhalation units are somewhat deceptive. Although the individual unit, complete with metered valve and adapter, may

(*Continued on page 815*)


Fine quality, glass-stoppered perfume bottles.
Number 435 is made in ¼ oz., ½ oz. and 1 oz. sizes.
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Either bottle can be supplied plain or with fired-on ceramic labels.
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PERFUME
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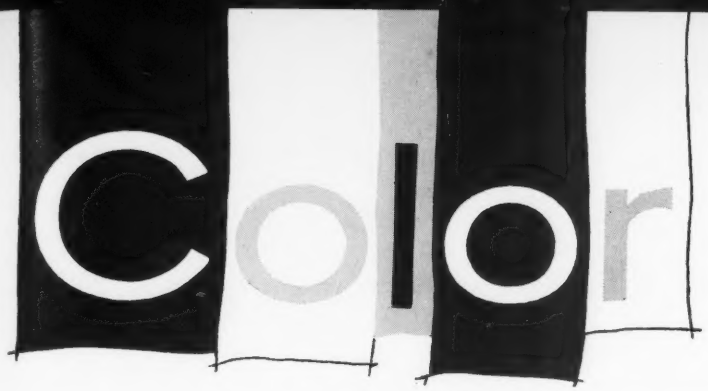
Designers and manufacturers of fine glass containers
Factory and Main Office: BALTIMORE 3, MD. • New York Office: 415 MADISON AVE. • Chicago Office: 1572 MERCHANDISE MART



IN PACKAGING*

BY L. W. SWANN
FISHER'S FOILS LTD., WEMBLEY, MIDDLESEX, ENGLAND

Retail packaging has never entirely neglected color. With people's appreciation of color now so much more acute, and with competition in similar brands now so much more intense, it is not to be wondered at that manufacturers, through their packaging specialists, are keenly alive to the importance not merely of colors but of the best possible combination of colors for achieving a desired effect. The color printing of trade designs has, in consequence, become a most important part of the packaging trade.

It might therefore not be inappropriate first to remind ourselves of a few simple facts upon which the theory of color is based. As we all know, there are three primary colors:

Red Yellow Blue

When these are mixed together we are able to produce the three secondary colors:

Orange Green Violet

These, with the three primary colors, make up the simple six-color chromatic scale. An admixture of these six colors enables an endless variety of intermediate colors to be created.

Color has three qualities, They are:

Hue Value Chroma

Hue is the basic color name: Value is the dark-to-light range of a color: Chroma refers to the degree of brilliance or intensity. We might next make a proper differentiation between:

Tint and Shade

A color that has been diluted with white, or a translucent color that has been applied over a white ground, is known as a tint. A color that has been made less pronounced by mixing it with its complementary color is known as a shade. The basic pairs of complementary, or opposite, colors, and which form the strongest contrasts, are:

Orange and Blue-Red and Green-Yellow and Violet

Colors, like shapes, can be made to provoke strange optical illusions. An area of the same size and shape, for example, appears larger when it is in a light color than when it is in a darker one. Warm colors seem to come towards us; cold colors seem to recede. An effect of movement may be achieved by placing bright complementary colors side by side.

From all this it will be seen how useful color is for influencing people in a required manner, affording the packaging designer increased opportunities for creating for the product to be marketed, the correct element of sales appeal. We must, however, guard against a tendency to concentrate overmuch upon intense complementary colors simply on account of the strong optical effect that they produce; selecting the best colors for retail packaging is far more subtle.

Thought has first to be given to the people whom it is desired to influence. Children, for example, all react more strongly to designs printed in bold primary or secondary colors; ordinary housewives, who constitute, perhaps, the biggest single element of the population to which the packaging trade must address itself, are naturally more discriminating in their reaction to color. A greater range is therefore possible; harmony of color combinations is appreciated. A product that depends for its success upon creating an aura of stylishness and sophistication is usually best marketed in a pack of more delicate color achieved by nicely balanced tints and shades.

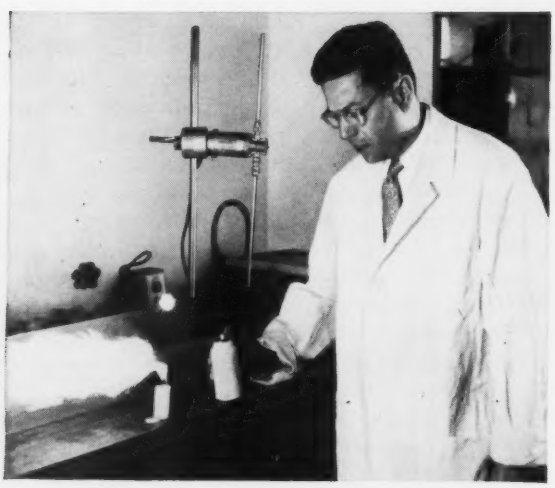
The task of color selection for packaging is sometimes influenced by the fact that certain products, or their qualities, are linked psychologically with certain colors. Linen, for example, is always associated with green. Emphasis upon the chocolate element in a particular food is usually achieved by creams and browns. If, in marketing a toilet soap, one wishes to create an impression of refreshing cleanliness, one would use light blue or light green; if, on the other hand, the exquisiteness of the perfume is to be stressed, one would probably select a delicate pink. For frozen foods the package should obviously be predominantly ice blue. Bitterness or dryness in a drink might be expressed by green; sweetness by yellow or gold.

(*Continued on page 816*)

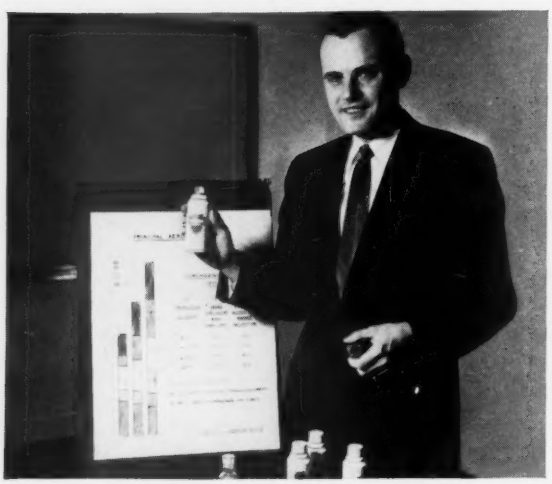
*Abstracted from **Perfumery & Essential Oil Record.**

TO AEROSOL MARKETERS... ***Present and Prospective...***

GENERAL CHEMICAL OFFERS THESE HELPFUL SERVICES

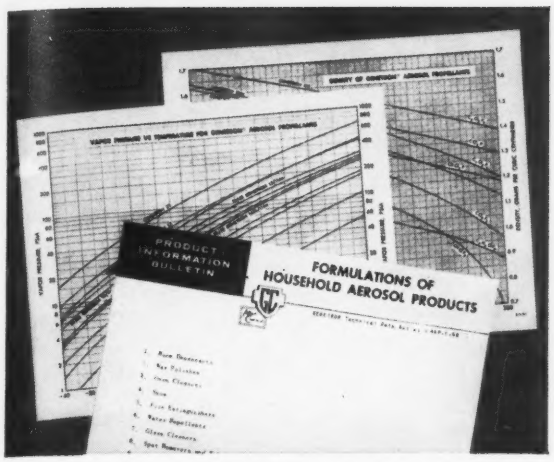


Expert Technical Service, Formulation Assistance. General Chemical has one of America's finest aerosol laboratories—completely equipped for testing and development work. Its services have guided many aerosol marketers in their development programs and are readily available to you. With General Chemical's help you may be able to save time and money in arriving at a compatible aerosol formulation of your product for evaluation and final testing by your own research and marketing experts.



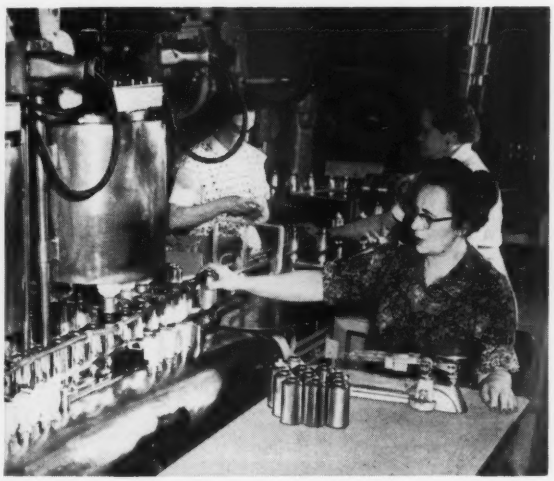
Market Data. General Chemical has prepared a fact-packed marketing and sales presentation to help you in a preliminary survey of the aerosol field and in planning your marketing program. It includes sales projections for aerosol and non-aerosol segments of many markets, prepared by our Market Surveys Department, as well as a host of other helpful facts and figures. To arrange for a special presentation, simply call or write General Chemical's "Genetron" Department.

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.



Technical Data. General Chemical offers technical information ranging from the physical properties of "Genetron" propellants to formulation data—including many new and promising formulations developed or tested in our laboratories. Rapid strides in aerosol chemistry and technology have rendered obsolete many of yesterday's "conclusions" about the economics and practicality of aerosol packaging for certain products. We will be glad to review such products with you in light of current knowledge. Ask to be put on our mailing list for new technical bulletins.

Basic "How To" Manuals. Two free booklets are available on request. *"How to Push Up Profits with Aerosols"* contains valuable market and technical data . . . reliable sources for contract filling, aerosol containers of every type, valves, etc. . . . brief descriptions of the complete line of "Genetron" aerosol propellants. *"Genetron Aerosol Propellants"* is a more technical manual, with extensive data on the physical properties of "Genetron" propellants and mixes, technical service, commercial filling methods and other topics of interest to the aerosol manufacturer.



Field Assistance. General's aerosol experts are always available to help solve problems involving the storage and handling of propellants in your plant and filling line. You may find it profitable to discuss your filling line operation with a General Chemical technical representative, from point of view of operating efficiency and economy, propellant handling, etc. Technical manuals on storage and handling of "Genetron" aerosol propellants are available on request.

A Full Line of Aerosol Propellants. All standard fluorinated hydrocarbon propellants and mixes are available in the "Genetron" line—also special propellant mixes where unusual properties are required. The "Genetrons" provide the right propellant for virtually *every* aerosol need . . . are first choice of many leading fillers and marketers for formulating household, drug, cosmetic, agricultural, industrial and other types of aerosol products. Write today for further information.

Allied Chemical

genetron®
AEROSOL PROPELLANTS

Putting the "push" in America's finest aerosols

Packaging and Selling

On occasion, we have used this non-technical department to report some of the advanced research techniques in the cosmetic business. As a matter of fact, we look back with a great deal of pride upon several editorial scoops wherein we have reported research discoveries even before some of the most learned technical publications.

For instance, we were undoubtedly the first to mention the research being carried on in France to obtain hormones from embryonic chickens which would have cosmetic value in facial cream.

In the same way, we scooped the scientific literature in reporting that horse serum was under critical cosmetic examination.

A little later, we were in the van when we gave the full story on Royal Jelly. This was quickly followed by our exclusive story on the potent cosmetic effects found in a substance contained only in the pollen of orchid blossoms.

Now we are about to announce, for the first time in this country, a new discovery originating in France which will certainly catch the amazed interest of American scientists.

Since 1953, European scientists have been working with concentrated energy on Ginseng. It appears, from the initial literature, that they have succeeded in isolating the extrapones and have incorporated them in a very penetrating skin cream.

As this trade well knows, we can accept this statement from this literature, "Modern chemists and physicians have attempted to pierce through the mystery of those fabulous roots."

Again, according to this source, "Analysis and research has shown that Ginseng contains a glucoside —panaquilon; a saponoside—panaxoside; a volatile oil—panacene; resin; gum; phytosterols; vitamins B and E and a newly isolated substance consisting of amino acids and active elements related to vitamins. This new substance is known as the "T" factor.

The "T" factor is considered as the "mobilizing" agent of latent forces. From this, it is perfectly apparent that a challenging new force is about to appear on the cosmetic scene.

Ginseng has always been one of the most fascinating products in the entire range of botanical drugs. The drug industry has been familiar with it for many generations, but the western world has never been able to find or isolate any therapeutic qualities in this mysterious root. Although it is primarily found in Asia, there is quite a substantial commerce in Ginseng in the United States, where we believe the entire crop is exported to China. To the Chinese, the Ginseng root represents the "man image." In fact, the root very often does take the form of a man with a trunk-like body, sprawling legs and spreading arms. It is said that the ancient Chinese emperors paid extraordinary sums to purchase the root that most nearly took the form of a human being.

We found some interesting literature of general interest in the scientific paper which announced this great cosmetic discovery. Under the intriguing headline, "The Wonderful Story of Ginseng," we give you here the romantic side of this extraordinary root as told in this literature.

"The story we are about to tell you is an extraordinary one. Ever since the International Theraputic Congress was held in Karslruhe, scientists the world over have been alerted to the astonishing properties of a very rare plant which is found in the woody and mountainous district of the Ossouri between Manchuria and Korea. This plant is called Ginseng and legends about it date back to more than 4,000 years ago. The ancient Chinese believed that its root had the mysterious power of bringing back health and conferring the blessing of eternal youth.

"This strange plant is known to botanists as Panax Schinseng. It has a red stalk, 5-petalled flowers, and its root has the shape of a little gnome without a head. The Jesuit missionary Father A. Semedo (1585-1658) was the first European to draw attention to the existence of Ginseng in China and, until the recent revelations of the explorer Werner Crone. the miraculous properties of the 'Root of Life' were shrouded in a mist of legends dating back for centuries.

"In the region between Manchuria and Korea there is an old legend which dates back four thousand years and which has been handed down to our day.

"According to this legend, the spirits who control the forces of nature inhabit a region high up in the sky, far above the clouds.

"These spirits have harnessed the energy of the heavens and it is they who send thunder and lightning down to the earth.

"It so happened that a violent tempest broke out one night and at all the points where lightning struck the earth during this tempest a delicate plant sprang up and flourished in the freshness of the morning. This plant was called Ginseng which means 'the vital force of the earth.'

Artistry without equal
SIR WALTER RALEIGH
Z.B.T. Baby Powder
WITH OLIVE OIL
MOISTURE-PROOF
RONSONOL
LIGHTER FUEL
BAND-AID
sheer strips
BLEND WITH YOUR SKIN
Johnson & Johnson
BAYER
ASPIRIN
...on metal
With metal you can decorate every inch of package surface ... in any color combination imaginable. Nothing can replace the good impression metal makes. Continental's experience in metal decoration is both wide and deep. The artistry of our craftsman is unexcelled. Let us show you what we can do for your product line.
CONTINENTAL CAN COMPANY
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Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4
Canadian Division: 5595 Pare St., Montreal, Que.

more news about Ucon BRAND propellants ...coming your way soon

Here's what fillers and marketers of aerosol products will get with new UCON Propellants:

FIVE TOP-QUALITY GRADES, to meet aerosol product specifications for pressure, stability, safety, and dryness.

TECHNICALLY-TRAINED REPRESENTATIVES—who know aerosol markets—to help fillers and marketers choose the most efficient and profitable combinations of UCON Propellants for aerosol products. They will give practical advice and assistance on containers, valves, equipment . . . provide valuable technical and market data.

EXPERT TECHNICAL SERVICE to help fillers and marketers develop profitable new aerosol products, modernize and improve present ones.

ON-TIME DELIVERY of the quantity wanted, from a nation-wide network of distribution points.

GUARANTEED FULL WEIGHTS, because every CARBIDE tank car carrying UCON Propellants will be weighed individually, *at a standstill.* That means *full delivery* . . and protection against money losses!

Years of Experience Back The High Quality of UCON Propellants

. . . and the technical assistance that will be available to you. CARBIDE has long been active in the fields of emulsion technology, surface-coating technology, silicones, solvents, and the manufacture and handling of gases . . . all associated with the aerosol industry. Thus, UCON Propellants are a logical extension of CARBIDE's research and development programs.

For more information on UCON Propellants—products of America's newest fluorocarbons plant—write: UCON Propellants, Union Carbide Chemicals Company, 30 East 42nd Street, New York 17, N. Y. Call, write or wire us, today! Attention: Dept. B-12.

"Ucon" and "Union Carbide" are registered trade marks of Union Carbide Corporation.

Ucon BRAND propellants

UCON Propellants will be available in five grades

UCON Propellant 11 Trichloromonofluoromethane
UCON Propellant 12 Dichlorodifluoromethane
UCON Propellant 22 Monochlorodifluoromethane
UCON Propellant 113 Trichlorotrifluoroethane
UCON Propellant 114 Dichlorotetrafluoroethane

UNION CARBIDE CHEMICALS COMPANY *Division of Union Carbide Corporation*

"Gathered by the light of the full moon in accordance with a complicated ceremony, the roots of Ginseng, so it was said, conferred the gift of eternal life on those who made use of them.

"Another legend is recounted in the mountains of Manchuria. There were two famous families who had long been feuding with each other. One of the families was led by a bandit named Son Chin Ho and the other by a just and generous warrior named Ginseng.

"Ginseng succeeded in taking Son Chin Ho prisoner, but the beautiful Liao, sister of Ginseng, fell in love with the prisoner, helped him to escape and fled away with him.

"Ginseng pursued and finally caught up with the two lovers. A fierce battle ensued in the presence of Liao. In the course of the battle, both men were killed.

"Liao wept bitterly for the loss of her brother and of her lover. Her sorrow was so great that her weeping caused her beauty to fade away.

"But at the very spot where her burning tears fell to the ground, an astonishing plant took root: Ginseng, the flower of life.

"The reputation of Ginseng roots was solidly established in ancient China.

"Legends speak of miracles and of the plant's power of bringing the dead back to life. The extraordinary virtues of the plant seem to have stimulated the imagination of storytellers and of poets.

"The ability to conquer fatigue, cure illnesses, restore strength and prolong youth and life gave the famous roots of this plant a specially precious and sacred character.

"They were sold for more than their weight in gold.

"The rulers of China kept them jealously for their own use and those who tried to carry the root out of the country were punished by death.

"In the 17th century the Siamese ambassadors came with great ceremony to present gifts to King Louis XIV. Among these gifts a precious coffer was laid at the feet of the king as though it contained the rarest of jewels. The coffer contained a few dried specimens of the famous roots.

"It has never been established whether there was any connection between the arrival of these strange roots and the King's fascination with the charming Louise de La Valliere who was favored with his attentions for so long.

"Ginseng is undoubtedly the world's oldest medicinal plant.

"Although the Chinese utilized it to cure illnesses, its immense prestige is due to the mysterious power of conferring eternal youth which the Orientals attributed to it.

"The root of Life is the precious secret of the beautiful women of the Orient whose complexion has been admired by navigators of all times."

The mass market and mass marketing have been the darlings of the big boys, among both the manufacturers and the advertising agencies. Anything skeptical of this so-called modern American concept in marketing has been denounced with withering scorn.

However, just recently the advertising vice president of that huge mass marketing organization General Foods reported that a study made by his company showed that "the average family is exposed to 1,500 advertisements every working day."

According to this advertising man, it is a very tough problem for advertising to "fight its way into the consciousness of consumers."

As a result of this new viewpoint and new analysis, this company's advertising policy appears to indicate some dissatisfaction with the blind acceptance of the concept of the mass market. For instance, in discussing the selection of media, three points were made: (1) not everybody is a prospect for every product; (2) it is getting very expensive to reach everybody; and (3) often advertising directed at a segment of the population can be more productive than that aimed at the mass.

"By attempting to appeal to everybody, advertising can often end up doing a weak job on everybody and a strong job on none. . . . I predict that in many cases the phrase 'precise selection' is going to replace 'covering the waterfront.' "

We were recently reminded of one of the most famous sales persons who ever got behind the counter in a retail store. This was an Elmo demonstrator who, many years ago, kept the cash register clanging in a way that made retail history in the cosmetic business. This demonstrator's favorite product in the Elmo line was a cream that our somewhat vague memory recalls was a strawberry cream, or perhaps a cucumber cream. At any rate, it had a fruit or vegetable somehow concealed in it.

During the course of an enthusiastic demonstration with wide-eyed proclamation on the purity of this product, this ebullient saleswoman would always dig a big glob of the cream out of the jar and put it in her mouth and start chewing with an ecstatic expression.

Needless to say, further proof was scarcely needed that this was a superbly pure cream that could be put on the most delicate skin without the slightest qualm.

We had almost forgotten this rare salesman until, at the Merchandising Executive Club, the rack jobber Irving Feldman of Zelart Drug Co. made a statement that some cosmetics are so good that they could be classified as foods as well as drugs. As evidence that he meant what he said, in the course of his talk he drank some Halo, Prell and White Rain shampoo with a little side sampling of Arrid deodorant.

We have an idea that this guy is going places in selling cosmetics to supermarkets.

With Bernardin · Quality is a **SERIES** of satisfactions

ARTIST AT WORK

Steel is his canvas, a radial drill his brush; but this craftsman is an artist in accuracy for he works to a tolerance, in this 42-stage mold, of .0005".

From this mold will come the beginning of Bernardin Plastic Closures; precise in dimension, tough, resilient, beautiful. Then, through control after control, they flow through Production to emerge as immaculate caps, designed to protect and grace some of the nation's foremost pharmaceuticals, chemicals, cosmetics, and household products.

Machines alone do not make Bernardin Closures. Veteran craftsmen guide these machines and guard their output; for ability and pride are treasured quality controls, too, at Bernardin, where Quality must deliver a *series* of satisfactions.

QUALITY METAL AND PLASTIC CLOSURES BY

BERNARDIN

Bernardin Bottle Cap Co., Evansville, Ind.

A visual impact laboratory is the latest thing in package research. National Analysts, Inc., a commercial research organization in Philadelphia, has developed such a laboratory, which was announced at a recent meeting of the American Psychological Association.

This laboratory is designed to show manufacturers how to design and package a product to attract consumer attention and to eliminate uncertainties of consumer opinion.

As an illustration of how it works, an experiment was described to show which of two packages of toothpaste had more "pull" or "immediate attention value."

A group of observers looked into a Stereo-Rater, an instrument which presents one picture to the right eye and simultaneously a completely different one to the left. The observer is then asked to describe what he saw. Actually he had seen a composite picture of the two packages but usually one view predominated.

In another test, a talcum powder manufacturer is told that two words on his brand label are too close together to be seen readily by the housewife. He is then advised what changes he must make in his label if he wants the brand name to stand out more prominently than the product name.

Portable laboratory instruments are now being produced that can be carried into the field for various types of research surveys.

With this coming Christmas season, one of the most beautiful packages ever created for an aerosol application will come on the market. This is the new Chanel purse flacon. Light and sturdy, smart and shock-resistant, designed by Chanel for the age of air travel, this beautiful gold and black anodyzed aluminum case is a honey.

It would seem to us that this just about completes the entire evolution of aerosol to a successful conclusion in the perfume industry.

When aerosol was first used for dispensing fragrance—about two years ago—there was a great deal of sober head shaking by certain people in the perfume business. These conservatives were chiefly disturbed by their opinion that the aerosol package, at that time predominately a successful dispenser of purely utility products such as household sprays, insecticides, shaving creams or hair sprays, could hardly be identified with so delicate and ethereal a thing as a fragrance in so important a way as a package.

This concept, in the higher and more rarefied atmosphere of perfume thinking, that aerosol is for the practical product in everyday household use, has been gradually disappearing as the cosmetic and perfume people presented to the country an increasingly beautiful and varied assortment of packages.

We think that this Chanel aerosol purse flacon with metered valve, which gives just the perfect amount of fragrance in 800 sprays, is the final answer to those former critics, namely, that an aerosol package can be both practical and beautiful, with respect to both fashion and prestige. We understand that this Chanel package received a rousing welcome at the different cosmetic shows and that the orders already placed have put the company far ahead of last year in Christmas sales.

E. B. Weiss made quite a name for himself when he was with Grey Advertising Agency as an interpreter of retail developments, and he has since been writing very informative articles and booklets as director of merchandising at Doyle Dane Bernbach, Inc. Now he comes out with a comprehensive study on a subject that has evidently intrigued him for some time.

This subject is the rapid development of highway retailing, which he believes is the next great retail revolution. "A great new retail revolution has begun," he writes, "that will alter the map of the marketing world every bit as much as did the shopping center. It involves the fast growing trend on the part of retailers to locate in solo locations out on the highways, as differentiated from the shopping center location, and it is being sparked by the government's $70 billion road-building program."

Here are the chapters in this study.

Shopulation Mobility—The Heart of Highway Retailing

Why Population Trends Encourage Highway Retailing

A Photographic Tour of Retailing on Ten Miles of Modern Highway

Retailing on Greater New York Highways

Highway Retailing Trends Throughout the Nation

Nocturnal and Sunday Shopping on the Highways

The Longer-Term Look at Highway Retailing

Mr. Weiss interprets what this new development will mean in terms of marketing and consumer shopping habits.

Our readers may remember the flurry of excitement which developed when a leading advertising agency invented the word "interurbia" to describe the fact that in many parts of the country, notably along the eastern seaboard and in the northeast, cities are so rapidly encroaching on each other that there is no perceptible open space between them. It is, in fact, a long string of merging urban populations.

What could be more logical than the simultaneous development of highway retailing?

Amid all the clamoring criticism of personal salesmanship in convention speeches and in the business press, very little has been said about the decline in effectiveness of national advertising as a result of not securing the fullest measure of retail cooperation.

On the basis of talking generally to retailers, there can be little doubt that a high percentage of national advertising is coasting on its own momentum with little or no help from retail stores.

Just what this means in partial loss of effectiveness

Colonial

DROPPERS AND ASSEMBLIES

Stress—

*Q.F.

THE Quality Factor, "Q.F.", in Colonial droppers and assemblies plays a key role in giving mothers peace of mind. Colonial's painstaking attention to quality standards has produced a product which continually meets modern hygienic demands required for new arrivals.

Let our technicians make free samples to your exact specifications. We have a Special Services Department to provide precision calibration in silk screening and hot stamping, too. It will pay you to contact a Colonial representative listed below or write to us directly.

Specialists in Glass or Plastic Droppers and Assemblies for Nearly a Quarter of a Century.

Represented by:

CHARLES E. SCHWAB	ALLEN J. GRETSCH	HARRY M. GRABER	GABLER & GABLER	RICHARDS GLASS COMPANY
122 E. 42 St.	327 LaSalle St.	811 S. 53rd St.	435 S. LaCienega Blvd.	102 Atlantic Ave.
New York 17, N. Y.	Chicago 4, Ill.	Philadelphia, Pa.	Los Angeles 48, Cal.	Toronto 3, Canada
OXford 7-0760	WAbash 2-1619	GRanite 6-6311	BRadshaw 2-2995	LEnox 2-3311

COLONIAL APPLICATOR CO.

VINELAND, NEW JERSEY

in national advertising cannot be measured, but certainly no one will disagree with the statement that national advertising suffers a substantial loss wherever there is a failure to get full retail cooperation on display, on product visibility and in many other ways.

A recent issue of Tide Magazine carried an article entitled, "Is Retail Know-How Advertising's Missing Link?" This is a report on interviews with the top executives of one of the biggest syndicate buying offices for retail stores in New York.

In it the executive staff agreed unanimously that many national advertisers and their respective agencies lack retail know-how. As the sales promotion manager put it, "Advertising agencies, despite their talk about retail know-how, really have little motivation or feeling for store operations. Their talk about retail understanding in many instances is nothing more than a promotional puff."

Probably for this reason retailers almost universally strongly prefer local advertising to national magazine advertising. This syndicate states that they are completely convinced that newspaper ads contain the strongest potential for moving goods. As one executive of this syndicate put it, "Sometimes stores feel that there is little direct sales results from national ads and the best medium for sales results is through local advertising." Another executive says, "I think national advertising is good providing it is used to guide local advertising which is the only real stimulant to move goods."

Furthermore, this executive states that they have numerous examples of national advertising losing its selling power through poor merchandising.

The passing of the era of the easy sell has made one big company executive caustic about the public and what the public thinks it wants.

According to Paul Wishart, president of Minneapolis-Honeywell Regular Co., "Salesmanship is no longer adequate in this country to meet the requirements of our highly developed industrial system, because five 'invisible barriers' to selling are exercising a restraining influence.

According to Mr. Wishart, these principal obstacles or problems in selling are: (a) unwarranted public criticism of the profit motive; (b) public resentment against the exercising of psychological pressures in selling; (c) the rapidly growing sophistication of the buyer in our economy; (d) a new emphasis on social and economic security; and (e) a diffusion of the salesman's responsibility, with many kinds of marketing experts getting into the act.

As an example of resistance to sales pressure, this executive cites the experience of Detroit where auto makers had "honed mass psychology selling techniques to their sharpest edge. Yet, the mass is not reacting, and is buying all sorts of odd little foreign creations that no self-respecting organization man should be caught dead in."

"The salesman's job," he said, "has also been made tougher by consumer sophistication, fostered by many new consumer research magazines.

"Also Social Security is working against selling because salesmen have fewer incentives for performance.'

It sort of looks as if we ought to have a law against the public's changing in this outrageous way.

Although the Buying Committee is well established in supermarkets as a means for judging new products, there is still a great deal of criticism and discussion, particularly from suppliers, for this method of judging the merits of something new.

According to the trade journal Super Market Merchandising, one of the leading supermarkets has a well-thought-out basis of 12 specific questions which the committee applies to every new product.

This is so practical, comprehensive and informative that we submit it here as an excellent test for manufacturers to apply to their own new products before they are submitted to any kind of retailer.

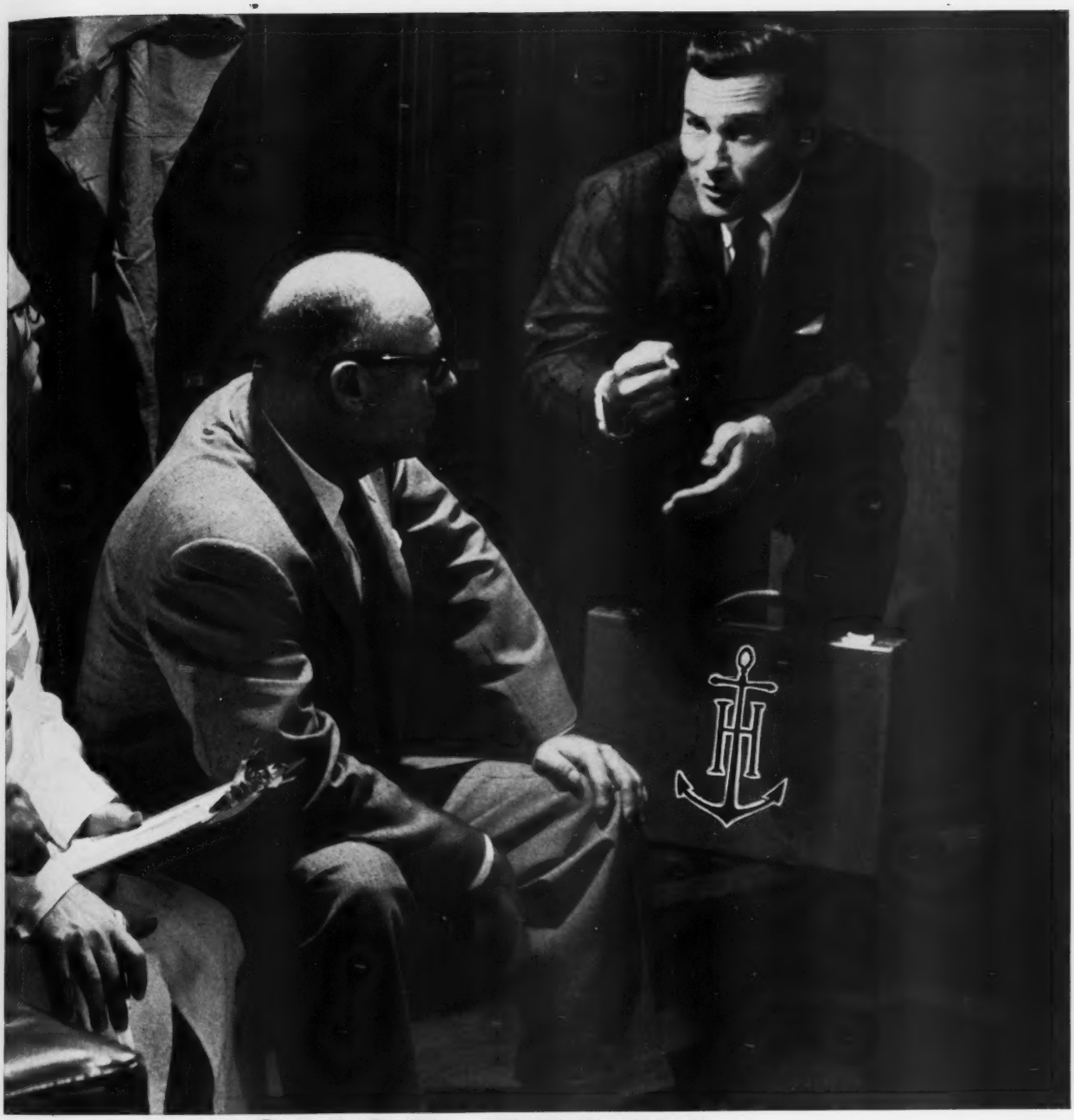
1. Is it a totally new item? Will it fill a need?
2. Does the item represent value to the consumer?
3. If it is coming into a field which is already well populated with the same item in similar forms,
   a. does it have a new taste thrill;
   b. is it newsworthy;
   c. does it represent a better value;
   d. is the packaging more attractive?
4. All items have to be matched against competition.
   a. What is the movement of all the other brands (in the field)?
   b. Is one brand lagging, which could be discontinued and replaced? If no brand is slow-moving, what is the possibility of our increasing the total business in this field?
5. What are our problems in the store in regard to space for ease of stocking?
6. What is the profitability of the item?
7. What advertising is going behind the product?
8. Is there a deal connected with the product?
9. Is the field an expanding one?
10. Is there some startling display piece which, if used in presenting the item, would add glamor and smartness to the store?
11. Is the company well known in its care of bringing out products with a record of success?
12. Does the salesman have a reputation for following up such ordinary details as car number, shipping dates, strikes and other delays in shipment?

When a man bits a dog, as the saying goes, that's news! We suppose that there is something of this news element in the most widely quoted fragrance publicity of the year, namely the Long Island garbage collecting firm which promised its customers to spray empty garbage containers with lavender fragrance.

A PACKAGING TEAM NEEDS

More and more, it's the package you use that helps decide whether your sales and profits grow. That's why more and more packaging decisions are becoming *team* decisions—a team made up of many specialists within a company. But to make a packaging team complete, it needs the "outside" viewpoint. It needs one more person—an Anchor Man! He's a glass packaging expert who has helped solve hundreds of packaging problems and who can help solve yours through this wide experience.

The Anchor Man has a complete line of Anchorglass® containers, available in amber, crystal and green—in all standard styles and sizes. They're containers whose uniform quality is safeguarded by hundreds of daily checks, tests



AN ANCHOR MAN!

and controls. These same high standards are reflected in his complete line of Anchor® metal and molded closures. That means he can recommend the container-closure combinations which are best for you.

Contact your Anchor Man. We know you'll want him on your team, too. Anchor Hocking Glass Corporation, Lancaster, Ohio. Branch offices in all principal cities.

ANCHOR HOCKING

Glass Containers and Closures

News in Packaging . . .

Designer Warns Against Over-Emphasis on Impulse Sales

Frank Gianninoto, industrial designer, recently warned the Cincinnati Advertisers' Club against paying so much attention to consumer responses at the point of sale as to neglect design elements that establish a lasting brand image. A package must spark an initial response and at the same time produce an indelible, meaningful impression.

This latter quality, Mr. Gianninoto terms "product relatedness." It involves a package thoroughly representative of the brand and of all the pleasure and convenience associated with it.

PMMI 1959 Show

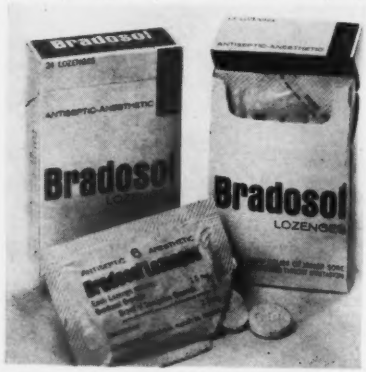
The New York City Coliseum will be the scene of the Packaging Machinery Manufacturers Institute Show from November 17-20, 1959. More than 60,000 square feet of display space has already been reserved, according to J. Henry Richmond, Potdevin Machine Company, and president of the Institute.

New Packaging Consultation Service

Grace Gilbert has announced the establishment of a packaging consultation service under her own name at 1135 Pelham Parkway, New York 69; phone, TUlip 2-9637.

Miss Gilbert, who has been associated with Revlon as packaging specialist and with Hattie Carnegie as supervisor of cosmetic and jewelry packaging, plans to combine a realistic and practical approach with actual package designing.

Ciba's new antiseptic-anesthetic throat lozenges, packaged in a cigarette-type box with cellophane wrapper, tear strip. Box contains 24 lozenges in 4 printed foil packets. The complete package, by the Ivers-Lee Company.



Chanel Wins CSMA Award

The Chemical Specialties Manufacturing Association presented Chanel, Inc. with its award in its aerosol packaging contest, for the Chanel No. 5 Spray Cologne as "the most attractively designed package in the perfume, cologne and toilet water division." The award was presented during the forty-fifth annual meeting of CSMA in New York City.

Revised Publications List Issued by Packaging Institute

The Packaging Institute has recently made available a revised list of publications for the packaging industry. This extensive bibliography on packaging may be obtained from the Institute's office at 324 Madison Avenue, New York 17, N. Y.

The Institute has also announced that over fifty papers presented at the annual national Packaging Forum last October have now been published in four volumes.

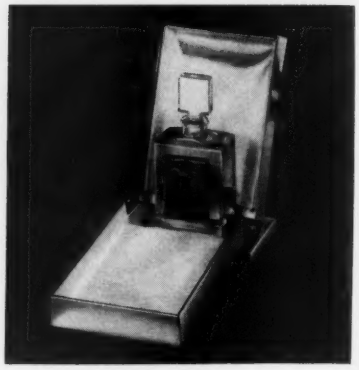
BPAC Survey

The Better Packaging Advisory Council is conducting a survey to establish an evaluation of unit or shelf packaging by actual users that will include questioning of packaging materials suppliers.

An earlier survey indicates that more than 50 per cent of manufacturers are contemplating a change in package design or material for the coming year and that 30 per cent of the companies queried had replaced folding and set-up cartons and boxes with fibre cans or tubes during the last five years.

Seven major reasons for choosing fibre can packaging for their products were given: economy of container, better product protection, economy of shipping, due to light weight, opening and closure convenience, better appearance, durability and facility of labeling and sealing.

Cost reduction proved the major motive, and 74.4 per cent of the companies surveyed reported a cost reduction in at least one of three categories: container cost, shipping cost, or filling and sealing cost. Reduction in container costs averaged 16.1 per cent; in shipping costs, 9.6 per cent; and in filling and sealing costs, 14.9 per cent.



Unusual all-brass package for Evyan's new perfume Great Lady, designed by Dr. Walter Langer of Parfums Evyan, Inc. Container has breakaway sides hinged on a solid base that holds bottle in shockproof position by clamp.

New Design Firm Founded

Russell S. Dixon and Roy Parcels, former vice-presidents in charge of design at Jim Nash Associates, Inc., have announced the formation of Dixon & Parcels Association, Inc., with offices at 485 Fifth Avenue, New York City. George Woolley and Henry R. Fauteck, also formerly with the Nash organization, have joined the new firm as associates.

The Association will specialize in package, trademark and industrial design.

Libson Selected as Judge

Philip Libson, director of package development, Max Factor & Company has accepted an invitation to serve as a judge of the 1959 national folding carton competition sponsored by the Folding Paper Box Association, in the general merchandising superiority category. Mr. Libson, the only representative from the cosmetic industry to serve, will be a panel member for the third year.

Ready-to-use injectible form of Pfizer's psychotherapeutic agent Vistaril, packaged in single-dose, disposable cartridges with individual sterile needles, eliminates waste and cross-infection. Packs of 10 with 10 needles.

sheffield tubes

NEO-POLYCIN, PRODUCT OF PITMAN-MOORE CO., WIDELY USED FOR TOPICAL INFECTIONS IN INFANTS

Precious protection for infants! Sheffield Process Tubes used for Neo-Polycin provide absolute safety and maximum preservation...offer the greatest utility, convenience, and help build consumer acceptance. Sheffield collapsible metal tubes are *ideal* containers for hundreds of other successful products...medicinal, drug, cosmetic, industrial and household. Your product will sell *better* in a Sheffield Tube! Ask for facts, figures, samples, catalog. The Sheffield Tube Corp. (since 1850). Home office: New London, Conn. Sales offices: New York, Chicago, Los Angeles.

Suntan oil, handily and evenly sprayed from Crown-pioneered Spra-Tainers, adds to fun in the sun. Only Crown makes both the seamless and fabricated types of pressure packages. Crown does the art and lithography, too. Dozens of products—cosmetics, pharmaceuticals, toiletries, paints, insecticides—are brightening their sales outlook through aerosol packaging. Crown can help you find a more prominent place in the sun for your product.

for cans • closures • crowns • machinery

CROWN

CROWN CORK & SEAL COMPANY, INC.
9300 Ashton Road, Philadelphia 36, Pa.

ADVERTISING NOTES

BY TED KLEIN, PUBLIC RELATIONS DIRECTOR*

PRSA Conference

Last month over 1500 public relations executives from all over the nation gathered in New York City for the 11th Annual National Public Relations Conference sponsored by the Public Relations Society of America. The general subject of the meeting was "The Great Forces Shaping Our Future." It was evident from the very outset that the corporation in today's world has a marked interest in the capabilities and responsibilities of informed public relations. The list of members and guests included at least one executive from nearly every major company in the country, and most leading pharmaceutical firms were represented by public relations directors.

A "trade" convention is always a good place to take the pulse of your profession, and it wasn't long ago that industry conferences were primarily concerned with selling corporate images, getting management to go along with publicity campaigns and raising the professional standards of the public relations man. But this meeting was concerned chiefly with the vital problems facing the free world and how the profession of public relations could help protect the democracy that is waging economic, cultural and ideological war with communism.

To many students of public relations, an efficient and well-trained practitioner of the art is really an expert in propaganda and communications. Russia knows this to be true and spends millions to train and develop "information specialists" to carry on the war of ideas with the West. The Soviets far surpass us in numbers of experts and in money spent, when it comes to telling the uncommitted nations of the world about communism versus democracy. The budget the communists spend on "jamming" the Voice of America far exceeds the budget of our entire program.

The most important lesson we must learn, according to several speakers, is not to try to remake the world in our own image. The communists have twisted the truth so well that millions of Europeans and Asians actually think that our billions of dollars in economic aid spent since World War II were an attempt to buy off their nations. The Russians, on the other hand, by giving far less than we have, have actually convinced many of the same nations that Russia is trying to help develop a "free" economy without selfish motives.

The conference this year heard some rather discouraging reports on our international efforts. We also heard a former Assistant Secretary of State, A. A. Berle, Jr., tell how we are failing to keep pace with the world-wide increase of productivity. He reported that several other nations are going ahead faster than we are. Although we have been the world's leaders in production Berle said, "the fact is that we are increasing our productivity at the rate of about 3 per cent a year, while France is going ahead about 5 per cent a year, the Japanese claim 6 per cent, and the Russians boast of 7 to 10 per cent annual increases . . . . In the final analysis it takes words—carefully and deliberately chosen—to convey the story of American business." It is the job of public relations to see to it that these words get the widest and most influential world-wide audience.

New Era for Pharmacy

David Stiles, head of Abbott Laboratories' excellent market research setup, feels that pharmacists are on the threshold of a great new world. In a recent speech Stiles called attention to the fact that fewer and fewer prescriptions are being compounded. He reports that in 1945, 25 per cent of all Rxs required compounding, compared to about 6 per cent today. However, he finds that since 1940 the actual number of drug stores has not increased significantly. Since pharmacists are still in short supply, Stiles feels that the pharmacist should welcome the change. If the trend towards less compounding were not to continue, there would not be enough pharmacists to fill the increasing number of prescriptions.

By 1960, Stiles points out, the approved pharmacy schools will require five instead of four years for a degree. Along with this increased effort on the part of the pharmacy educators to train pharmacists more thoroughly, advances in medicine seem to require that physicians know more and more about pharmacology. It seems to many in the field that pharmaceutical companies should do more towards providing advance information on new drugs, not only to the physician but to the pharmacist as well. Many physicians rely on the druggist to tell them what's new. It is not at all uncommon for a medical building's pharmacy to install and pay for direct lines to their store as a service. As the education of the pharmacist continues to improve, so does his influence with physicians. He can become a real partner.

Word Master

To Joyce Hoffman of New York's Warwick & Legler, words are precious pearls that clients treasure. As a writer on the Revlon account, she is one of the creative forces behind such current lipstick promotions as Butterfly Pink and Fifth Avenue Red, to entice millions of women to change their lipstick brand or try a new color nail enamel.

From the time Joyce was in her teens when she read a story of a girl copywriter by Sara Pennoyer, she has been dedicated to finding words to attract buyers. However, Joyce feels that "wordsmanship" is merely an adjunct to good advertising —the selling idea is always the main thing.

To many experts, the copywriter is often the key person and her words are a catalyst to advertising.

Joyce Hoffman, who works on the Revlon account at Warwick & Legler, Inc. in New York.

*Paul Klemtner & Company, Inc.

This new packaging idea sells 66% of a $60,000,000 market

In 1958 some $40,000,000 worth of aerosol shave creams will be sold. Aerosol packaging has captured about ⅔ of the $60,000,000 shaving-cream market and has revolutionized sales for hair fixatives, colognes, insecticides and a host of other products.

The reasons for this success are simple. Aerosols deliver a product in a completely new form—a form that's easier to use and apply, without mess or waste. If your product can be brushed, poured or sprayed, you stand a good chance to add new sales appeal—create a positive competitive advantage—if you package it in an aerosol.

It's not necessary to set up your own aerosol packaging line to enter this field. A custom filler near you has the knowledge and equipment to help you. He can package your formulation for testing and help you from planning through production.

If you don't know the name of a custom filler, write Du Pont. We'll send you a list and include survey data on the market for aerosol products, plus information about Freon* propellents for aerosols. More of today's aerosols are powered with "Freon" than with any other propellent. Write E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division 3412, Wilmington 98, Delaware.

Best-selling aerosols are powered with

FREON® *propellents*

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

*FREON AND COMBINATIONS OF FREON- OR F WITH NUMERALS ARE DU PONT'S REGISTERED TRADEMARKS FOR ITS FLUORINATED HYDROCARBON PROPELLENTS

Patent thoughts and trends

BY THOMAS CIFELLI, JR., PATENT ATTORNEY*

Pepsamar v. Pepto-Bismol

In a recent case a Federal District Court in New York ruled that Sterling Drug unfairly competed with Norwich Pharmacal Co. with respect to the marketing of the former's Pepsamar in relation to Norwich's Pepto-Bismol.

The Broad Question: The case focuses attention on a practical problem of general interest. That problem is: where does fair competition end and unfair competition begin? It is likely that this problem has confronted almost everyone engaged in business at one time or another. It is not meant to suggest that business people are unethical or operate close to the line. The simple truth is that competition is so keen these days that one must employ all possible means to stay abreast of his competitors and, since the line between what is legal and what is illegal is not clear and shifts from time to time, it is not too hard to understand that perfectly honorable business entities may get involved in squabbles on this question. It is, therefore, believed that placing the facts of the Norwich-Sterling Drug case as they appear in the aforesaid opinion before the readers of this journal will be of service, since we all believe in education.

The Essential Facts. Pepto-Bismol is probably known by almost everyone of reading age in the U. S. A. It has been advertised nationally for more than 25 years in almost all media. The extent of advertising is indicated by the fact that over 2 million dollars were expended in advertising and promoting Pepto-Bismol in each of the years 1954 and 1955. The 1955 sales amounted to about 7,600,000 dollars, representing about 30 per cent of Norwich's sales for that year. It is said to be available for customer purchase in about 99 per cent of all of the drug stores in the United States. In sum, the product, Pepto-Bismol, can be said to be a nationally and favorably known product.

As just about everybody knows, Pepto-Bismol is a liquid pharmaceutical preparation intended primarily for the relief of temporary stomach distress. The product has actually been on the market since about 1900 and the active ingredients of the product which appear on the label of each bottle have not at any time been essentially changed. Pepsin was eliminated as an ingredient some years ago when it was found to have no therapeutic value. Some improvements in the matter of obtaining a more stable liquid were made over a period of years. According to the reported opinion, a feature of Pepto-Bismol is that it has always been marketed as a liquid, opaque pink in color. This color is artificial and is obtained by the addition of a small quantity of food coloring. The Court stated that the color or the ingredient producing the color has no therapeutic or medicinal value in itself.

Pepto-Bismol is marketed in a clear, colorless glass bottle, triangular in shape. Attached to the bottle is a wrap-around label with a yellow background. The face or front of the label contains the words "Pepto-Bismol" in large red letters, the word "Pepto" appearing as an upper line and the word "Bismol" appearing just below. Immediately beneath the name are the words "for upset stomach."

In the words of the Court: "Sterling's product, 'Pepsamar,' is practically a carbon copy of Pepto-Bismol insofar as its ingredients, color and its intended functions are concerned. It was first manufactured in a limited amount for the purpose of an area marketing test in October 1955. Shortly thereafter, it was placed upon the market in direct competition with Pepto-Bismol. The product was the result of investigation and experimentation commencing in 1953. After an investigation into the sales practices of Norwich and the sales records of Pepto-Bismol and an analysis of the product itself, the laboratory department of Sterling was instructed by its president to manufacture a product 'as near as possible to Pepto-Bismol.' This included the copying of the pink Pepto-Bismol color as closely as possible. Although a considerable amount of evidence was taken as to the identity of the two products, it need not be labored here since Sterling admits, in its brief, 'as to the product itself, the stuff inside the bottle, Sterling has frankly admitted that its product was intended to be very similar to Pepto-Bismol, just as close as the laboratory could make it.' "

With respect to the marketing and sales of Pepsamar the Court had the following to say: "New Pepsamar is marketed in a clear, flat glass bottle with labels on the front and back. Upon the front label, which is composed of a white and blue background, the word 'Pepsa' appears in large blue letters upon the upper line and the word 'mar' immediately beneath. These two lines occupy over one-half of the front label. Immediately below are the words 'For Upset Stomach' on a sort of waving pennant background. The back label contains the directions for the use of the product, the ingredients thereof and the symptoms of conditions which are appropriate for its use.

"Sales promotion of the new Pepsamar and the advertising thereof commenced in about October 1955. Radio, television, newspaper and display pieces were the advertising media principally used. In color advertising, the pink colored bottle is featured and in black and white advertising, the product is referred to as a pink liquid. Up until 1956, the description of Pepsamar as a gentle pink liquid was used in both radio and television advertising. This reference was eliminated after the commencement of this action. The phrase "for upset stomach" has also been used in Pepsamar advertising, substantially in the same manner as in the Pepto-Bismol advertising. Sales of the new Pepsamar, like Pepto-Bismol, are made through drug stores and food stores. It is generally offered in either four or eight ounce bottles. Up to the time of the trial, the sales of new Pepsa-

*Richards and Cifelli, Newark, New Jersey.

New Perfection

DROPPING PARTS

Protect YOUR PRODUCT'S REPUTATION

#1

Non-rolling, extra-depth, Bakelite cap; thick-flange rubber bulb; Saftee-ball glass.

#3

Regular plastic cap; thin flange rubber bulb; semi-blunt glass.

#4

Metal cap: AMEKINE oil-resisting synthetic rubber bulb; blunt glass.

Improved bottle shape. Designed to lie flat for convenient labeling. Front provides ample label space.

Your product's hard-won reputation is risked every time it is taken from the medicine chest. Any inconvenience, such as a non-functioning dropper, will be permanently associated with it. You can remove this risk by entrusting your carefully-compounded preparation to New Perfection dropping parts—painstakingly made of quality materials for the utmost in dependability and cleanliness.

✱ ***We can supply dropping parts to fit your bottles or furnish complete with our own bottles in large or small quantities and also in special packaging such as cellophane-wrap.***

RUBBER BULBS

are supplied in many styles and colors. Oil-resisting AMEKINE synthetic rubber is used for oil preparations; natural rubber is supplied for other products.

CAPS

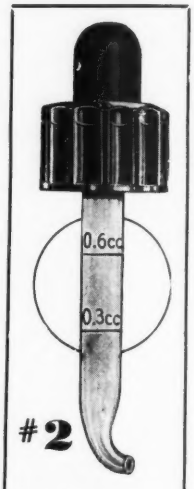
of plastic or metal, can be furnished in a complete range of sizes and colors.

DROPPER GLASSES

are available in a wide variety of styles and sizes. Plain or CALIBRATED in any color to mark specific dosages. (Also available in plastic)

BOTTLES

in an attractive modernistic style in Amber, Blue, Green or Clear glass, are available, complete with dropping parts, in the following sizes: ⅛, ¼, ½, 1 and 2 oz. (Immediate shipment on all sizes and colors)



#2

Non-rolling extra-depth Bakelite cap; thick flange rubber bulb; CALIBRATED special bent glass.

Write for Samples and Quotations

PENNSYLVANIA
GLASS PRODUCTS CO. INC.

"Glass Goods of the Better Kind"

430 N. CRAIG ST. • PITTSBURGH (13), PA., U.S.A.

mar amounted to about $90,000 with about one-half of those sales in the State of Ohio. The Sterling company has spent about $512,000 in advertising and sales promotion of its new product."

Norwich's Contention. Norwich did not direct its contention to the copying of the *formula* for its product but asserted that Sterling had so imitated Pepto-Bismol in its non-functional attributes and had so advertised and marketed its new Pepsamar as to confuse the buying public, destroying Norwich's property rights to a degree which would be considered unfair in the light of ethical practices required of business competitors. The Court stated that Norwich's contention was based principally upon the almost exact imitation of the color of Pepto-Bismol, the imitation of the emphasis upon the pink color which had been stressed in Pepto-Bismol advertising and is likewise stressed in Pepsamar advertising, the emphasis on the words "upset stomach" on the Pepsamar label and in advertising similar to the label in advertising previously used over a long period of time by Pepto-Bismol, and the splitting of the name Pepsamar into two parts on the label, similar to such an arrangement of the label of Pepto-Bismol.

Sterling's Contention. Sterling, according to the decision, admitted imitation of the product but denied unfairness in the sale or distribution thereof. It took the position that no one has a monoply upon pink color, which has long been used in remedies for the alleviation of stomach distress, and that it has a therapeutic value in the sense that it is attractive and soothing to those suffering from such distress. Sterling further contended that the words "upset stomach" have also been used extensively over a period of years in the description and advertising of stomach distress remedies. With respect to the splitting of the word Pepsamar into two parts Sterling contended that this was occasioned for the same reason that Pepto-Bismol was placed in two lines by Norwich about 1953: in order to make the name more legible to customers who must view the product across a counter or at some little distance.

The Function of the Color. Is the use of pink color in the competing products functional? The question of whether anything is functional or non-functional is important in cases involving unfair competition. This is easily seen by a simple hypothetical case. Assume a liquid preparation which has, let us say, a natural resulting color of light amber. If a competitor puts out a similar product with an amber color, which is a function of the composition, no one can object. However, let us assume that such a product in the form of a strawberry-red color has been on the market and has met success for some time. If a competitor comes out with a product and duplicates the strawberry-red color (which is non-functional, that is, non-natural) the normal inference is that the new product was colored red in order to trade on the good will of the established product.

Now, to get back to the question of whether the pink color in Pepto-Bismol and Pepsamar is functional or not.

The Court's Findings. The Judge said that it was not disputed that the pink color and the ingredients producing this color have no healing value in themselves. It was designed to present a pleasing appearance to the customer and to the sufferer. The Judge recognized that a disordered stomach will accept that which is pleasing and reject that which is repulsive. Sterling contended that this has a soothing effect upon those suffering from nervous stomach disorders. However, the Court found that the pink color had no functional value as the word is commonly used and understood. In other words, the Court rejected the Sterling contention with respect to pleasing appearance and acceptance, stating that this was a matter of individual preference.

The Judge indicated in his decision that he was of the opinion that Sterling's object was to imitate Pepto-Bismol rather than to improve its formula. In this connection the Judge mentioned that Sterling made no test of color acceptance. Particular stress was placed by the Judge on the asserted fact that Sterling used the same shade of pink color found in Pepto-Bismol. A statement by a high official of Sterling that he gave instructions to have the Sterling product made similar to Pepto-Bismol and consequently it would have a pink color, weighed heavily in the Judge's conclusion that Sterling intentionally imitated the appearance of the Pepto-Bismol product.

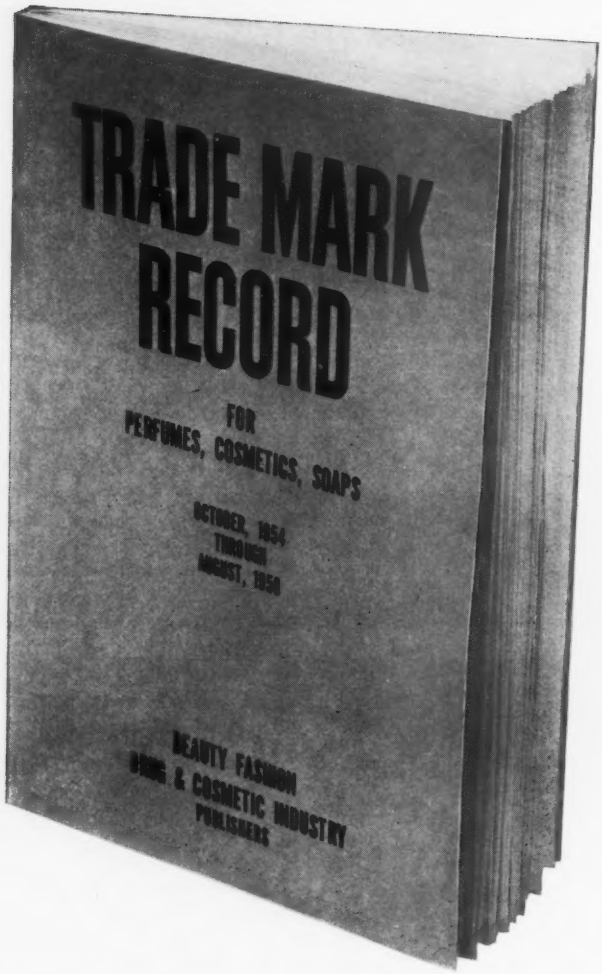
The Court was not impressed with the argument that other manufacturers had used the same color in the marketing of proprietary medicines intended for similar use. For one thing, the Court noted that a wrong committed by another would not excuse Sterling. Also, the Court pointed out that it is not the color alone upon which Norwich is relying, but rather it is the intentional misappropriation of the non-functional attributes which helped to make up the identity of its Pepto-Bismol.

The Court's Ruling. The Court ruled that Sterling was competing unfairly. In this the Court noted that Sterling admitted that its intention was to simulate Pepto-Bismol as nearly as the law would allow and that free competition, so necessary in our economic life, does not countenance the assumption of a competitor's identity. The Court felt that Pepsamar's pink color was not adpoted because of its alleged therapeutic value, its soothing qualities or its use in similar remedies; but that the undisputed evidence was that it was adopted for the sole reason that it was an attribute of Pepto-Bismol. The Court felt that this fact alone seemed indicative of the intention to trade upon a drug of a competitor, and taken together with the exploiting of the pink color in its advertising, would constitute unfair competition. The Court felt that unfair competition existed here because of the appropriation of the non-functional attribute of Pepto-Bismol as a whole rather than upon the sum of its parts appraised individually.

Patentability of Chemical Compounds

A recent decision of the Patent Office Board of Appeals points up the increasing difficulty of obtaining patent protection on new chemical compounds which are related to known chemical compounds. Reference is made to the case of Ex parte Dole, wherein the claim was for bis-(dichlormethyl)sulfone. The pri-

(*Continued on page 822*)



NEW TRADE MARK RECORD SUPPLEMENT PUBLISHED

The Third Supplement to the TRADE MARK RECORD for Perfumes, Cosmetics, and Soaps is now ready for distribution.

This THIRD SUPPLEMENT contains all Trade Marks belonging to the toilet goods, cosmetic, soap, and perfume industry.

The compilation of this Supplement starts with October 1954 and runs through August 1958. It is a continuation of the Second Supplement published in 1954.

The Trade Marks published here represent all listings in the Official Gazette of the United States Patent Office and all unregistered names compiled by the Toilet Goods Association and supplied to us through their cooperation.

Subscribers to the previous volumes will need this latest Supplement to bring their record of Trade Marks up-to-date. Use this Trade Mark Record to check all proposed trade marks quickly and thoroughly. The thousands of additional names will make this possible.

The price of the Third Supplement to the Trade Mark Record for Perfumes, Cosmetics, and Soaps is $5. postpaid. Outside the United States $6. postpaid. In New York City please include 3 percent sales tax when remitting.

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FOUR FINISHES: Gold-Cote, Gold Mist, Gold Nugget and Clear

SIX SIZES: 1 dram, 2 dram, ½ ounce, 1 ounce, 2 ounce and 4 ounce.

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NEWS...

NWDA Selects Van Arsdale

H. C. Van Arsdale, executive vice-president of Smith Kline & French Incorporated, wholesaling subsidiary of Smith Kline & French Laboratories, today was elected president of the National Wholesale Druggists Association at the group's annual convention here. A member of the NWDA for 20 years, Mr. Van Arsdale last year served as chairman of the association's board of control.

Roche Promotions

The promotion of Alfred F. Zobel, from assistant advertising manager to the position of director of product planning, Roche Laboratories, has been announced by V. D. Mattia, Jr., M.D., general manager of this division of Hoffmann-La Roche Inc. Mr. Zobel joined Roche in 1942.

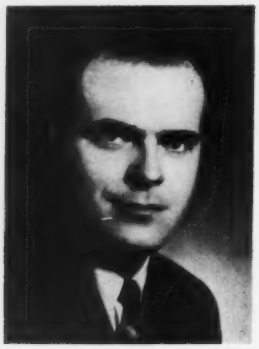
The division has also announced the promotion of James A. Chambers to the position of assistant sales promotion manager. Mr. Chambers joined the sales department in 1954.

Upjohn Appointments

J. C. Gauntlett, director of advertising and assistant marketing staff administrator of The Upjohn Company, has been named vice-president of the firm's International Operations and manager of its Canadian Pacific division.

Mr. Gauntlett has been with The Upjohn Company since May, 1941.

The company has also announced the promotion of Edward R. Barnett



J. C. GAUNTLETT

to the post of divisional sales manager of the Chicago branch. He has been supervisor, southern Illinois, since 1953.

Gregory Thomas Heads Fragrance Foundation

President of Chanel, Inc., H. Gregory Thomas, was reelected president of the Fragrance Foundation

GREGORY THOMAS

at its ninth annual convention held October 21, at the Waldorf-Astoria in New York.

Huck Named

John L. Huck, Jr., has been appointed assistant to the marketing and advertising director of Merck Sharp & Dohme, Division of Merck & Co., Inc., according to an announcement by Eugene L. Kuryloski, director of sales and marketing for the division. Mr. Huck was formerly with Roche Laboratories.

Meckley Elected Baker Director

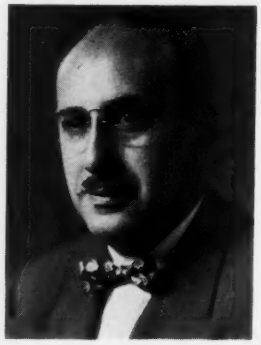
L. S. Meckley has been elected a director of the J. T. Baker Company, according to Dr. J. R. Stevens, executive vice-president.

Mr. Meckley has been with J. T. Baker Chemical Company since 1946 when he held the position of production supervisor. Since then he has held a number of increasingly responsible positions, most recently as director of manufacturing.

L. S. MECKLEY

Di Cyan Elected President

At its annual meeting the Association of Consulting Chemists & Chemical Engineers elected Erwin Di Cyan, president.



ERWIN DI CYAN

Dr. Di Cyan is director of Di Cyan & Brown, New York firm of consulting chemists, rendering research and development services to the drug and cosmetic industries.

Wallerstein Appoints Sales Mgr.

Matthew F. Gray has been appointed manager of pharmaceutical sales of the Wallerstein Company, Inc.

Mr. Gray was formerly with the American Cyanamid Company, serving in both the Lederle Laboratories and the Fine Chemicals Divisions.

Meeker Named Vice-President

The appointment of Franklin G. Meeker as executive vice-president of the Andrew Jergens Co. has been announced by Andrew Jergens, president. Mr. Meeker succeeds Joseph D. Nelson, who is retiring after 54 years of service, the last 18 as executive vice-president.

FRANKLIN G. MEEKER

Mr. Meeker has been vice-president, sales, since 1949.

Exploring the Secrets of Nature

Applying new scientific knowledge to develop synthetic aromatics hitherto unknown
Re-creating, synthetically, precious natural distillates and extracts
These are problems successfully mastered by our research chemists and perfumers.*
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Union Carbide Appointments

D. R. Smith has been promoted to product manager in the New Chemicals group of Union Carbide Chemicals Company, division of Union Carbide Corporation. Dr. Smith will direct the market development of nitrogen and chlorine compounds, working closely with the pharmaceutical industry.

The corporation has also announced that Clifton D. Crosby, who was previously a market analyst in the market research department, has been promoted to assistant manager, sales analysis.

Mr. Hoffman, formerly a technical representative in the Newark district, has been assigned to the sales analysis department.

Pfizer's McKeen to Serve

John E. McKeen, president of Charles Pfizer & Co., Inc., has agreed to serve as chairman of the Drugs and Pharmaceuticals Division for the $1,000,000 Campaign of the New York Arthritis and Rheumatism Foundation, according to E. D. Bransome, campaign chairman.

Changes at Armour

James B. Lesh has been appointed technical director of the Armour Pharmaceutical Company, according to Robert A. Hardt, president, Dr. Lesh continues as director of research and development as well.

Armour's Bio-Chemical Department has announced the appointment of J. H. Walker who has been with the company in various managerial capacities for many years, as eastern regional sales manager.

JAMES B. LESH

F. N. Bernard, who has served the firm for 33 years, has retired. Most recently Mr. Bernard represented the department in the East.

Rubin, MacDonald Named

Hoffmann-La Roche Inc. has announced the appointment of Saul H. Rubin to the position of corporate director of product development.

Dr. Rubin joined the company in 1941 becoming director of applied research in 1956.

SAUL H. RUBIN

The appointment of Edmund L. MacDonald, Jr., as a salesman for the Vitamin Division has also been announced, by Robert W. Smith, general manager. His territory will be Long Island, Westchester, Connecticut and New England. Mr. MacDonald has been a medical service representative for the Roche Laboratories Division since 1954.

Squibb Appoints Merrill and Freeman

E. R. Squibb & Sons has announced the appointment of Reynold C. Merrill, M.D., Ph.D., as director of clinical research, domestic, in the Medical Division of the Squibb Institute for Medical Research, New Brunswick, N. J.

The appointment of Paul Freeman, formerly regional sales consultant, Chicago, to the newly created post of manager of professional relations has also been announced.

REYNOLD C. MERRILL

Givaudan Perfumer of Brazil Visits Givaudan U. S. A.

Fernand Torino, chief perfumer of Comphania Brasileira Givaudan, Sao Paulo, Brazil, recently spent two weeks in the United States visiting with The Givaudan Corporation. During his stay, Mr. Torino toured the Givaudan plant in Delawanna, New Jersey, and familiarized himself with the organization's perfumery research and development programs.

FERNAND TORINO

One object of his visit was the closer co-ordination between the perfume creative laboratories in the U. S. and Brazil.

Two Personnel Changes at Dow

The Dow Chemical Company has announced two important personnel changes in its sales department: James W. Harris, manager of organic chemicals sales since 1951 and with the company since 1932, has been appointed assistant to Leo B. Grant, sales manager of the chemicals department.

The name of the product group, organic chemicals, has been changed to organic chemical intermediates, and Earl H. Farnham has been named manager, succeeding Mr. Harris. Mr. Farnham, who joined Dow in 1945, has headed the sale of glycols since 1951.

Chemlab, Inc., Established

A new chemical laboratory, Chemlab, Inc., under the direction of Bernard Wolnak, has been organized with offices and laboratory at 11535 W. Franklin Ave., Franklin Park, Illinois.

The company will offer consulting and contract research, new product development, process improvement and development and technical services.

You can reduce your cost in multi-vitamin formulations

with

VITAMIN B_{12} IN GELATIN

As you know, in vitamin-mineral formulations ascorbic acid and iron sulfate are "bad actors" and a high overage of B_{12} is customary to maintain its potency over a prolonged period. The extra cost of this overage can now be greatly reduced since tests show that there is no loss of B_{12} activity when the gelatin form is used.

Cyanocobalamin in Gelatin is stocked at five points from coast-to-coast and immediate delivery is available. For a generous sample see your NYQ representative.

Cobalamin Concentrate in Gelatin has the same stability characteristics and is also readily available from NYQ.

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With custom chemical manufacturing becoming increasingly important throughout the industry, we feel you will be interested in NYQ's unique facilities, processes and experienced personnel detailed in this booklet.

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Du Pont Division Gets New Director

Douglas C. Newman, director of sales of Du Pont's Dyes and Chemicals Division has elected to retire early next year. Mr. Newman has agreed to remain as special assistant to the general management of the Organic Chemicals Department until the end of February.

William A. Bours, III, director of sales of the "Freon" Products Division, has been named to succeed him. Mr. Bours, in turn, will be succeeded by Dr. Carl S. Oldach, assistant director of the company's Development Department.

Mr. Newman joined Du Pont in 1918 as a textile colorist, and since then has held a variety of sales and managerial positions with the firm.

Mr. Bours joined Du Pont's Engineering Department in 1941 as a member of the Industrial Engineering Division, since then serving in various technical and sales capacities.

Dr. Oldach joined the company in 1940 as a senior chemical engineer, after which he held a variety of technical posts.

Felton Appointments

William J. Considine has joined the Felton Chemical Company as research director and head of the analytical department. Dr. Considine was formerly engaged in organic research with the Sloan Kettering Institute for Cancer Research and the Squibb Institute, and has taught at both Yale and Columbia Universities.

WILLIAM J. CONSIDINE

Dicran P. Kazanjian has been appointed purchasing agent. An eighteen-year man with Felton, he has held serveral positions, including plant engineer, and assistant purchasing agent.

Florasynth Executives Visit European Affiliates

Julien Bellot, director of research, Perfume Division, Florasynth Laboratories, Inc., has returned from Europe where for over three months he visited his many business associates and friends and conferred with the heads of the European affiliates of Florasynth.

In Grasse, France, Mr. Bellot and Joseph H. Fein, treasurer of the company, examined the new developments of Schmoller & Bompard, producers of flower absolutes, who for many years have been represented exclusively in the United States and Canada by Florasynth.

DCAT Honor Alumni

More than 400 members and friends honored former directors of the Drug, Chemical and Allied Trades Section of the New York Board of Trade at an "alumni dinner" held recently at the Waldorf-Astoria Hotel. Sixty of the 91 former directors were present to receive individual certificates presented by the chairman of the DCAT Section, Ralph A. Clark, vice-president of the J. T. Baker Chemical Co. Lloyd I. Volckening, president of Ivers-Lee Co., was toastmaster.

Ortho President Elected To J & J Board of Directors

Foster B. Whitlock, president of Ortho Pharmaceutical Corporation has been elected to the board of directors of Johnson & Johnson.

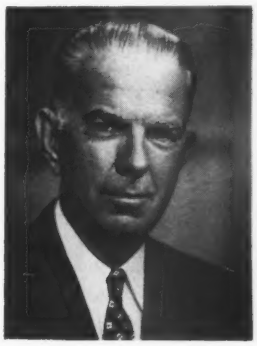
Mr. Whitlock joined Johnson &

FOSTER B. WHITLOCK

Johnson in 1939 and was transferred to the newly formed Ortho Pharmaceutical Corporation in 1940 as a salesman. After serving in many executive capacities, he was made president of that firm in 1957.

Mallinckrodt Elects Directors

Mr. Edward Mallinckrodt, Jr., chairman of the board of Mallinckrodt Chemical Works, has announced the election of John E. Gaston and John G. Moore to the company's board of directors. Both Mr. Gaston and Mr. Moore are vice-presidents of the company.



JOHN E. GASTON

JOHN G. MOORE

Mr. Gaston joined Mallinckrodt in 1946 and was elected to the board of directors of Mallinckrodt Chemical Works, Canada, in 1952.

Mr. Moore joined Mallinckrodt in 1947. In 1955 he was made a vice-president.

Endo Appoints Two

Endo Laboratories has announced the appointment of Felipe Sotomayor to the position of export sales manager for its Caribbean Division. At the same time, Carlos Ijac has been given charge of Central America, Peru, Colombia, and Ecuador as territories for distribution of Endo pharmaceuticals.

Mr. Sotomayor, was formerly associated with Squibb and other international organizations. Mr. Ijac was a detailing supervisor for Merrell in Venezuela and served as the Merrell distributor for Penizini Company of Venezuela.

New SCC Officers

Herman Jerome Amsterdam is the new president-elect of the Society of Cosmetic Chemists; Robert A. Kramer remains as perennial secretary; Lester I. Conrad has been elected treasurer and Dr. Sophie L. Plechner and Dr. Stillman R. Goff will be directors for 1959. Savery F. Coneybear is now president-elect and will assume the presidency for 1959.

Mr. Coneybear has long been active in the management of research and development, has been a director of research for Colgate-Palmolive Co., and is now in the newly created post of director of new products development. He has been chairman of the Society's publicity committee and a director.

The new president-elect is director of cosmetic research and deevlopment for van Ameringen-Haebler, before which he was on the faculty of Columbia University's College of Pharmacy. He has been chairman of the special award committee of the Society.

Bob Kramer, known to the cosmetic industry throughout the world, is vice-president of Evans Chemetics, and continues his willingness to assume the heavy burdens as the Society's secretary.

The new treasurer, Lester Conrad, is a founder of American Cholesterol Products, Inc., and serves that firm as executive vice-president and technical director.

Stillman Goff, formerly with Rayette, Inc., has been assistant research director of the Toni Company and is now research director. Sophie L. Plechner is senior pharmaceutical research chemist with Carter Products, Inc.

Mennen Company Is Eighty Years Old

The 80th anniversary at the Mennen Company was celebrated with presentation of a plaque to President William G. Mennen, who marks his 50th year with the firm. Jake Manheim made the presentation.

Feiertag Elected

Lester A. Feiertag, manager of production quality control at Abbott Laboratories, has been elected a Chicago Branch Delegate, American Pharmaceutical Association.

Fenner Joins Chesebrough-Pond's

Robert M. Fenner has joined Chesebrough-Pond's Inc., as a brand manager in the Domestic Marketing Division, according to Andrew A. Lynn, division vice-president.

Mr. Fenner, who will be responsible for Chesebrough-Pond's Pertussin, Valcream, Seaforth and Sofskin brands, came to the company from the Vick Chemical Company.

ROBERT M. FENNER

Lilly Staff Changes

Henry F. De Boest, formerly a regional sales director, has been named executive director of sales for Eli Lilly and Company.

Six regional directors will report to him: W. E. Nelson, east central region; C. S. Short, southeast region; L. V. Clemente, northeast region; C. R. Sublett, southwest region; G. M. Moore, western region; and D. S. Blackmore; west central region.

The company has also announced that Kenneth W. Wantland and John L. Federman have received promotions in the glandular products manufacturing division, Mr. Wantland as assistant director, Mr. Federman as superintendent of manufacturing.

HENRY F. DE BOEST

McClure Named

Edward J. McClure has been appointed director of purchasing for Crown Cork and Seal Company, Inc. according to Karl W. Mueller, executive vice-president.

Mr. McClure joined the company in 1938, serving most recently as acting director of purchasing.

EDWARD J. McCLURE

National Can Appointments

Fred B. McNamara has been promoted to Central Division sales manager for National Can Corporation in a series of five managerial shifts announced today by W. H. Winters, marketing manager.

S. V. O'Donnell, former Chicago district sales manager, has been appointed assistant to McNamara. R. B. Ganung becomes sales manager for the Chicago district; Ben F. Batcheler, sales manager, the Wisconsin-Michigan-Minnesota district; C. O. Wood, Ohio-Central Indiana.

Fleuroma Names Eisenkraft

Fleuroma Inc. has announced the appointment of Albert E. Eisenkraft to sales manager. Mr. Eisenkraft has been a sales representative for Fleuroma since 1951.

ALBERT E. EISENKRAFT

In the stomach, stubborn integrity;

in the intestine, swift dissolution—

en français, an accolade for

cellulose acetate phthalate

In Paris, the City of Light, at 23, rue de l'Ecole-de-Médecine, there has been published a brochure bearing the title, "Les enrobages modernes des dragées et des pilules." It devotes itself in part to cellulose acetate phthalate, a substance of our invention.

States this magnificent document (as inadequately rendered into the English tongue by our own poor efforts):

"But the largest part of our work was reserved for cellulose acetate phthalate. This product is extremely insoluble in the acid solutions and its solubility in pancreatic medium is due in part to a fermenting action which can be produced independently of pH, but can equally work in an alkaline medium. According to the fine demonstration of our co-worker, (name omitted in this quotation from considerations of privacy), **cellulose acetate phthalate is an ester which is hydrolyzed by esterase with a formation of acetic and phthalic acids and this explains all the interest in this new coating.**

"We believe we have demonstrated that it combines all the qualities required of a true enteric coating: First, it is devoid of all toxicity; Second, the formula which we have used combines the conditions for forming on a core a coating layer of uniform distribution.

"Moreover, the numerous experiments effected, 'in vitro' and 'in vivo' gave absolutely corresponding results and demonstrated that: thirdly, acetate phthalate coating resists perfectly prolonged passage in the stomach surpassing, by far, even the base criteria which we have established.

"Fourthly, it disappears very rapidly in an intestinal medium and in a lapse of time which we may estimate as under a half hour, whether the medium be alkaline or acid. This last peculiarity, characteristic of acetate phthalate, ranks this coating incontestably at the head of all those which we have tried and allows us to conclude that among these it is practically the only one responding exactly to the requirements of the trade.

"Two important factors remain which we must not overlook in that they concern the pharmaceutical industry. Fifthly, the technique of applying this coating is extremely simple and rapid, and sixth, its price is slightly higher than that of other enteric coatings, but it remains within the normal limits and does not otherwise appreciably influence the cost of manufacture."

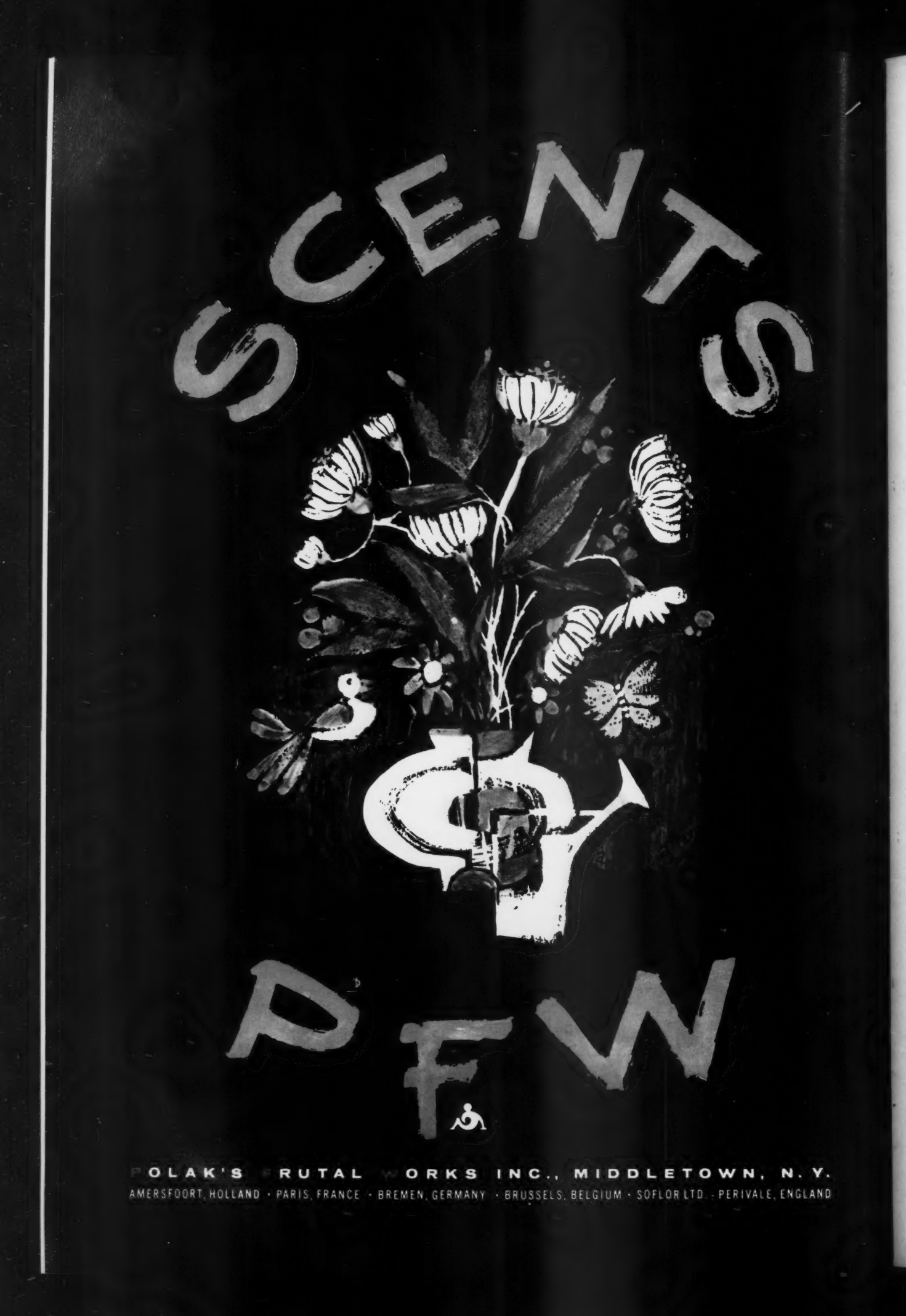
We shall gladly and at our own expense provide a translation of fifty pages from this comprehensive study of enteric coatings. Our distribution of the translation is not to be construed as adopting or recommending anything said or reported therein. Legal personalities stress this point.

The true, genuine Eastman Cellulose Acetate Phthalate (which has been applied to well over a billion doses during the past 18 years) bears the trademark "C-A-P." For the translation, procedural bulletin, descriptive folder, and prices, write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

DPi

Also vitamins A and E... distilled monoglycerides...
some 3700 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**


SCENTS
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POLAK'S FRUTAL WORKS INC., MIDDLETOWN, N.Y.
AMERSFOORT, HOLLAND · PARIS, FRANCE · BREMEN, GERMANY · BRUSSELS, BELGIUM · SOFLOR LTD. · PERIVALE, ENGLAND

New Appointments at Abbott Laboratories

New assignments in the scientific divisions of Abbott Laboratories have been announced by Elmer B. Vliet, vice-president and scientific administrator.

Dr. D. W. MacCorquodale has been appointed coordinator of science information. Named to succeed him as head of the biochemical research department is Dr. Floyd C. McIntire. Dr. Richard U. Schock has become head of the organic research department and Dr. Benjamin E. Greenwell is now a Literature Scientist of the Library staff.

Dr. MacCorquodale had formerly headed the biochemical research department since 1939, when he came to Abbott from the biochemistry department of the St. Louis University School of Medicine.

Dr. McIntire came to Abbott in 1942, after two years as a teaching assistant at Brigham Young University.

Dr. Schock joined Abbott in 1948 as a senior chemist.

Dr. Greenwell came to Abbott in 1950 as a Research Microbiologist.

Three appointments in the advertising department have also been announced. William C. Cray has been named public relations manager; Thomas A. Craig, assistant public relations manager; and Mary Alice Suydam, media buyer.

Organon Promotes Foresta

Organon Incorporated has announced the promotion of Louis Foresta to the position of sales and market research analyst. Mr. Foresta has been with Organon since 1939.

O'Reilly Named Sales Mgr.

The appointment of Gerry O'Reilly as sales manager for Bourjois, Inc. has been announced by F. X. Patrey, president of the company.

GERRY O'REILLY

Prior to this appointment, Mr. O'Reilly was associated with Prince Matchabelli and Seaforth.

Pinsince Named Vice-President

The appointment of Adrian Pinsince as a vice-president of Ayerst Laboratories, has been announced by W. Boyd O'Connor, president.

Formerly Export Manager of the United States and Canadian Export Divisions from 1953 to the present, Mr. Pinsince will continue to direct the international operations of Ayerst.

Colgate Appoints Special Products Coodinator

Appointment of Dan Chamberlin as special projects coordinator in the public relations department, Colgate-Palmolive Company, has been announced by Spencer C. Valmy, director of public relations.

Nelson Joins Emery

Appointment of Albert A. Nelson as commercial research manager of Emery Industries, Inc., has been announced by L. Church, controller.

ALBERT A. NELSON

Before joining Emery, Mr. Nelson conducted sales research for the Gibson Art Company, and had also been a buyer for the Procter & Gamble Company.

Whitehall Appoints Manager of Chain Store Sales

Whitehall Laboratories has announced the appointment of Robert Y. Nemes, since 1957 assistant to the vice-president in charge of sales, as manager of chain store sales.

Amoco Names Pfeiffer To Marketing Staff

John W. Pfeiffer has joined Amoco Chemicals Corporation for Export Sales, according to J. J. O'Connell, vice-president, marketing for the company.

During the past 17 years Mr. Pfeiffer has been associated with American Cyanamid, primarily in overseas marketing, and most recently as a product development director for Cyanamid International.

PFW Executives Cover the Globe

Recent trips by executives of Polak's Frutal Works, Inc., have included: Bernard Polak, president, to Manizales, Colombia, for the opening of a subsidiary company, Polak's Frutal Works de Colombia Ltda.; J. E. Meihuizen, managing director of PFW's associated firm in Amersfoort, Holland, to the U.S. for conferences with PFW officials at the U.S.A. offices in Middletown, N. Y.; and the treasurer, Eric Vles, who has returned from a 19-day trip to Europe with representatives from the Society of Cosmetic Chemists.

Richard Salomon, president, Charles of The Ritz (center), receiving a plaque for his leadership in The Federation of Jewish Philanthropies at the recent annual dinner, from Stanley R. Swaback, Abraham and Straus; Burton Sacks of Bloomingdale's, chairman of the drive, looks on.

Snapped at Givaudan-Delawanna's annual fall reception and cocktail party held at the University Club, New York City, left to right: Paul Adams, Andre Givaudan, George Warren, of Givaudan; Dr. H. Ruegg, Ultra Chemical Works; V. Marshall, Specific Pharmaceuticals; E. R. Durrer, Givaudan president.

Johnson Heads Research Group

Andrew L. Johnson has been named president and research director of the recently established Glass Container Industry Research Corporation, headquarters of which are in New Castle, Pennsylvania.

Swanson Named

Alfred A. Swanson has been appointed Chicago area sales representative for the Fine Chemicals Department, American Cyanamid Company, it has been announced by T. L. Floyd-Jones, general sales manager of the department.

Schumacher Elected Chairman of SAACI Committee

Warren F. Schumacher of J. T. Baker Chemical Co. has been elected chairman of the 1959 SAACI nominating committee by members of the Salesmen's Association of the American Chemical Industry, Inc., it has been announced by Robert J. Roberts of Emery Industries, Inc., SAACI President.

Others elected to the Nominating Committee are: E. L. Collins of Chilean Nitrate Sales Corp.; James M. Brady, New York Quinine & Chemical Works, Inc.; George L. Conboy, Merck & Co.; William J. Weed, Millmaster Chemical Corp.; Edward A. Bush, Dragoco Co.; and John A. Chew.

Glyco Names Mills

Edwin O. Mills, chemical engineer, has been appointed technical representative for Glyco Chemicals Corp., an affiliate of Chas. L. Huisking & Co. Mr. Mills will cover northern Illinois, Minnesota, and Wisconsin.

FDA Commissioner Honored

George P. Larrick, Commissioner of Food and Drugs, U. S. Food and Drug Administration, received the 1958 annual award of the Pharmaceutical Manufacturers' Association, in recognition of "long and devoted service" to the American people and for numerous contributions in the public health field.

Scientist Joins Sterling Staff

Appointment of Nicholas H. Batuyios to the staff of the Sterling-Winthrop Research Institute as a research associate in the Pharmacy Division was announced by Dr. M. L. Tainter, director.

Dr. Batuyios was a U. S. Pharmacopeia post-doctoral Fellow at the University of Michigan College of Pharmacy, from 1956 to 1958.

Pfizer Opens New Jersey Distribution Center

Chas. Pfizer & Company, Inc., recently dedicated its new Eastern Distribution Center at 230 Brighton Road, Clifton, N. J.

Medical Appointments at Robins

The appointment of J. Arthur Seaholm, M.D., and Paul W. Bowden, M.D., to the medical staff of the A. H. Robins Company has been announced by E. Claiborne Robins, president.

Alan Nelson Young has become an assistant in the Medical Department.

Aero-Chem Labs. Established

Establishment of Aero-Chem Laboratories, Inc., 1985 State Street Extension, Bridgeport 5, Conn., as a specialty packager and filler of aerosol products has been announced by Charles O. Rader, president of the new firm, formerly with Connecticut Chemical Research Corp.

Great Britain Aerosol Symposium

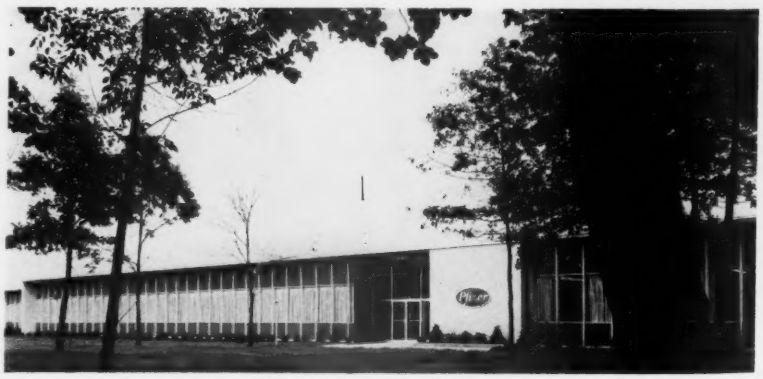
The Society of Cosmetic Chemists of Great Britain held an Aerosol Symposium at the Royal Society of Arts in October. The three papers presented were: Method for Recording Aerosol Spray Patterns, by K. Dixon B.Sc. of Cooper McDougall and Robertson; Compressed Bases as Propellants for Cosmetic Products, by A. Herzka B.Sc. A.R.I.C. of the Research Dept. Metal Box Co. Ltd.; and Perfumes in Pressurized Products by J. Pickthall F.R.I.C. Polak & Schwarz (England) Ltd.

William Weston Becomes Vice-President

Election of William Weston as vice-president of operations, Ultra Chemical Works, Inc., a division of the Witco Chemical Company, Inc., has been announced by Dr. Henry Ruegg, president.

Mr. Weston has been with Ultra for 22 years, most recently as plant superintendent.

The new eastern distribution center opened by Chas. Pfizer & Co., Inc., at 230 Brighton Road, Clifton, N. J. The building occupies 160,000 square feet of space, has blue window panels.



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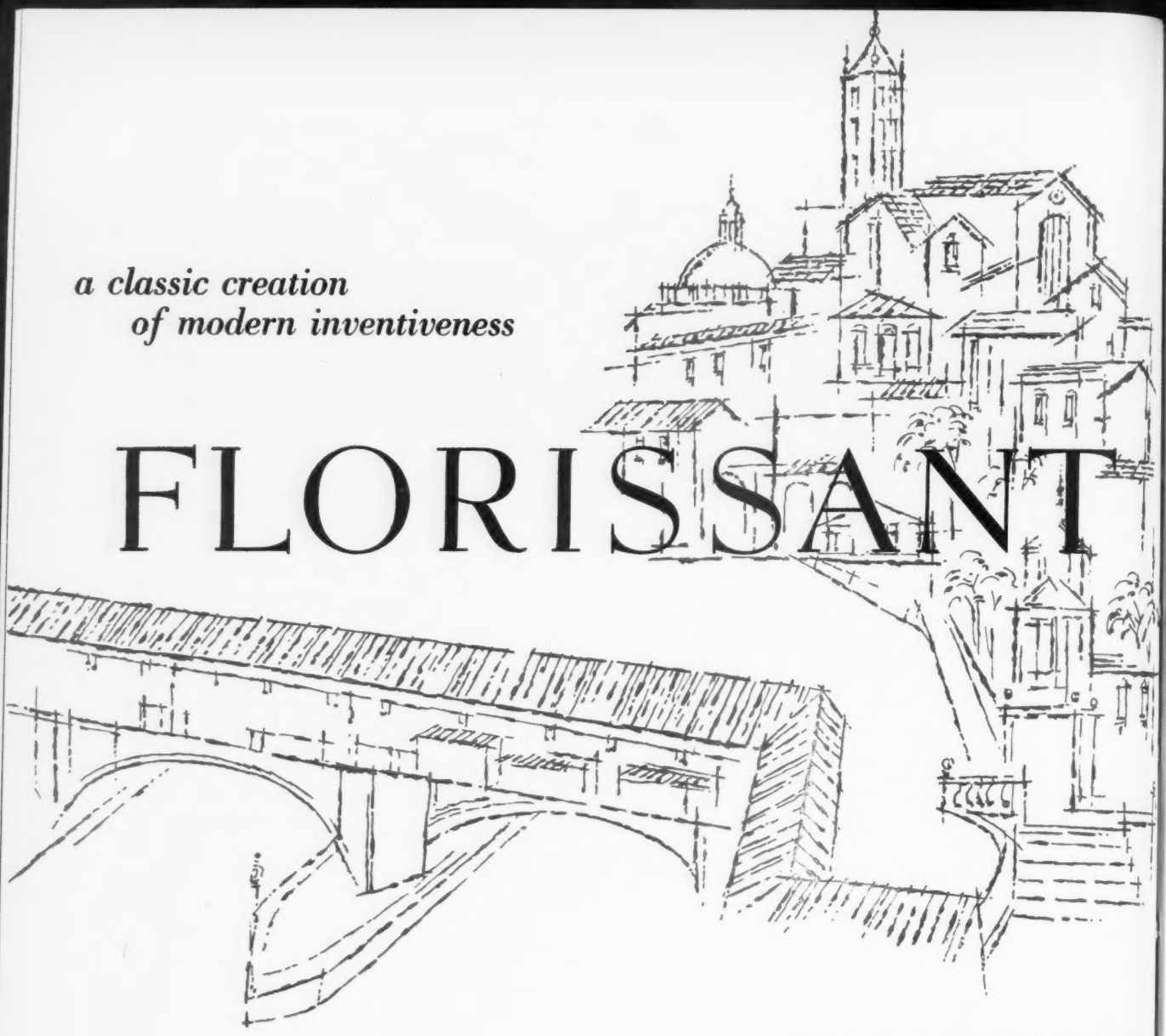
FLORISSANT



Imaginative yet practical, *Florissant*, a recent Synfleur creation, offers a superb opportunity for creams, powders, lotions and cologne formulations.

At the same time light and airy and tenacious and sophisticated, *Florissant* combines the elements of maximum appeal for classic creations.

We would welcome the opportunity to send samples upon request, or a trial pound at $7.50.

Synfleur

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Managua • San Jose • Panama • Barranquilla • Medellin • Bogota • Caracas • Maracaibo • Rio de Janeiro • Buenos Aires • Santiago

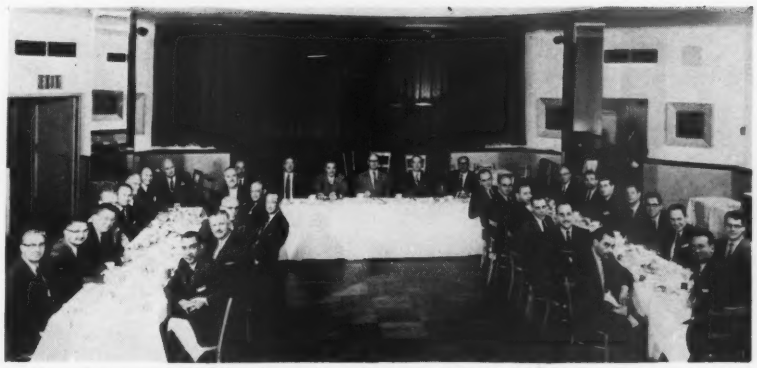
New York Sales Office: Telephone Plaza 7-1960

Pfizer Appointments

Dr. Rachel Jo Ann Mason, formerly with the Diagnostic Bacteriology Laboratory of Wayne County General Hospital in Detroit, has been appointed virologist in the biologics research department at the new Biologics Center of Chas. Pfizer & Co., Inc.

Joining Pfizer as a bacteriologist is Robert B. Ferguson, formerly with Pitman-Moore Company.

Joseph L. Stremfel has been named manager of the chain drugstore service department of Pfizer Laboratories, another division.



Guests and personnel of Felton Domestic and Export Division during a sales meeting in New York's Hotel Shelburne. New Products, and promotional plans for items now being developed were presented.

Thompson Joins Ketchum Division

The appointment of Howard Thompson as sales manager of the Connecticut Wholesale Drug Division of Ketchum & Co., Inc., has been announced by Harold M. Altshul, Ketchum president.

Carbide Moves Buffalo Office

The Buffalo District Office of Union Carbide Chemicals Company, division of Union Carbide Corporation, has been moved to 4446 Main Street, Buffalo 26, New York, telephone, CIrcle 4040.

Parke, Davis Appointments

Parke, Davis & Company has recently announced the following appointments: Richard J. Warren, as a microbiological research assistant; and James L. Schardein, as an assistant research biologist in pharmacology.

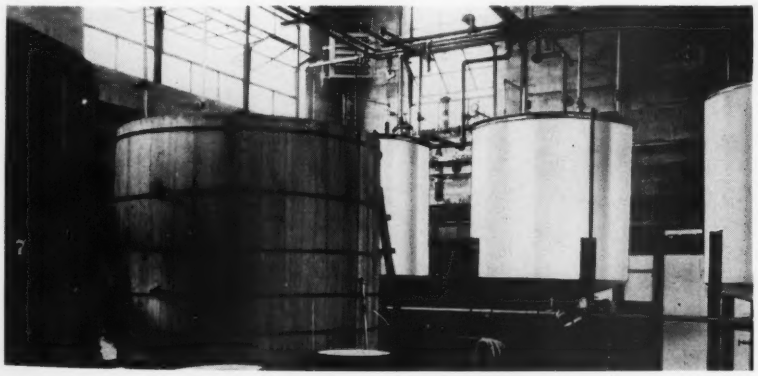
Five appointments in the firm's sales staff have been announced by N. L. Yarbrough, manager of U. S. Sales Operations. David L. Porter, sales representative in Oklahoma City since joining the firm in 1953, has been named field manager, the St. Louis branch; F. J. Komenda, with Parke-Davis since 1938, a supervisor in the company's Hospital Medical Service Division; George N. Wood, Jr., a member of the firm since 1949, to the Hospital Medical Service Division; E. J. Foster, a sales representative in Portland, Ore., since 1956, to the Hospital Medical Service Division; and Raymond H. Johnson, New York branch sales representative for the company since 1950, as a field manager in Boston branch, with headquarters in Hartford, Conn., which includes Cape Cod and the Springfield areas of Massachusetts, Rhode Island, and most of Connecticut.

Louis W. Lang, a sales representative since 1936, has been appointed a supervisor in the pharmaceutical firm's Hospital Medical Service Division in Washington, D.C.

D&O Is 160 Years Old

Dodge & Olcott, Inc., celebrated its 160th anniversary in October. Established in 1798, the growth of D&O has paralleled the nation's.

A corner of the plant recently opened by Croda, Ltd., at 185 Foundry St. in Newark, N. J., for its new subsidiary, the Hummel Lanolin Corp., formed by Croda's purchase of a division of Hummel Chemical Corp.



Roger Adams to Receive Award

That Professor Roger Adams of the University of Illinois, has won the American Chemical Society's Charles Lathrop Parsons award for outstanding public service, has been announced by Dr. Ralph Connor, chairman of the Society's directors.

Mitchell Named European Mgr.

William R. Mitchell, formerly senior account executive with J. Walter Thompson, Paris, has been appointed European regional manager for Bristol-Myers International with headquarters in Paris.

Stokes Molded Products Increases National Representation

Stokes Molded Products, Division of The Electric Storage Battery Co., has announced appointment of Matthew Andrews as manufacturers representative covering the state of Ohio for Stokes plastic and hard rubber products.

VCA Laboratories Moves

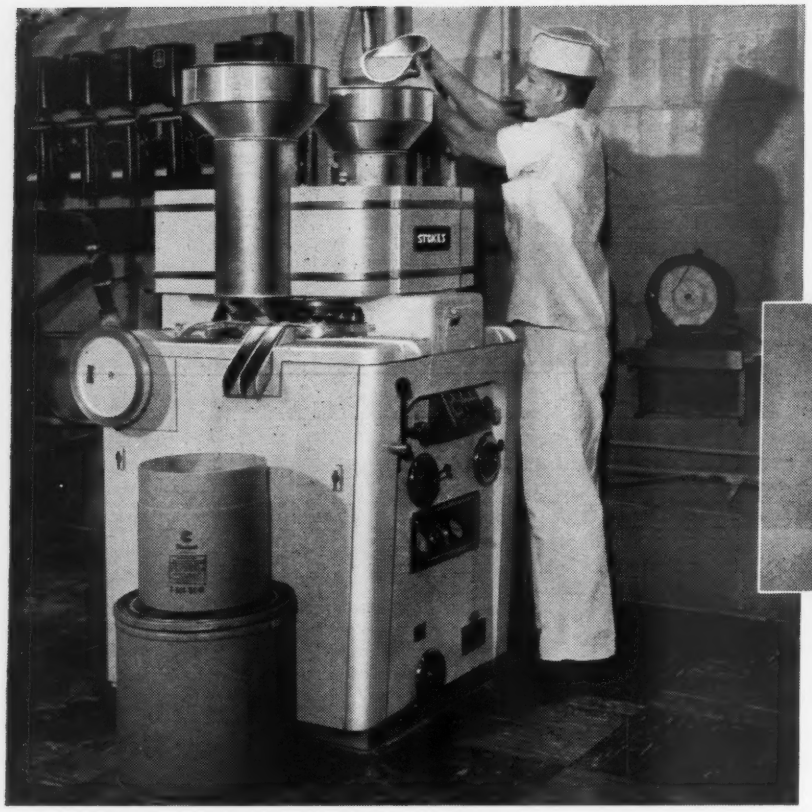
VCA Laboratories has moved to new and larger offices at 212 Fifth Avenue, New York 10, N. Y.; phone, MUrray Hill 3-5450.

Lee D. Callans

Lee D. Callans, a sales manager for General Chemical Division, Allied Chemical Corporation, New York City, died of cancer at Washington Hospital Center, Washington, D. C. on Sunday, November 23.

Walter E. Nelson

Walter E. Nelson, director of sales for Eli Lilly and Company's central region, died of a cerebral hemorrhage November 1, while on a vacation cruise with his wife.



Tabletting machine operator James M. Rencis fills the hopper of a Stokes Model 540 at the Morris Plains, N.J. plant of Warner-Chilcott. Granulation hoppers and all controls are within easy reach.

Warner-Chilcott ups "Proloid" production with Stokes Model 540 Rotary

Warner-Chilcott Laboratories, the ethical drug division of Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., uses a Stokes Model 540 Rotary Tabletting Machine for the production of 1-grain* "Proloid"... thyroid globulin preparation.

Mr. R. O. Buchholtz, Manager of Processing, credits the 540 with averaging "about 2300 tablets-per-minute on all types of production, about a 20% increase over the fastest of all other available equipment which we use." The improved dust collection system, simplified lubrication system, vibration-free performance, and ease of cleaning are also singled out by Mr. Buchholtz as very desirable features of their 540.

The Stokes Model 540 is advanced design in every respect. It's the easiest machine to set up and adjust that has ever been developed for tabletting. All controls and adjustments are readily accessible on a single panel. Pressure adjustment is made hydraulically by push button control.

The 540 requires little floor space. It is built for long life, long tool service, with centralized pressure lubrication and safety overload protection. It runs so smoothly that no special foundation or permanent mounting is needed.

Find out how the new Stokes Rotary Tabletting machines can save on your own production. Write or call your nearest Stokes office.

******The 1-grain tablet is the largest volume form of five Proloid dosages.*

Pharmaceutical Equipment Division
F. J. STOKES CORPORATION
5500 Tabor Road, Philadelphia 20, Pa.

STOKES

Management Forum

BY FRANCIS CHILSON
INDUSTRIAL CONSULTANT

Versatile Independent Inventor

In this day and age when much is said about the patent system being a tool of corporations, it is interesting to note that there is in fact a large number of so-called independent inventors. This statement is true not only with respect to the field of gadgets, which one would naturally expect to occupy the attention of store clerks, mechanics, do-it-yourself addicts and just about everyone else who fancies himself an inventor, but also with respect to the chemical field. To be sure, the relative number of independent inventors is not as high numerically or proportionally, it is believed, as is the case in the gadget field.

One of the hardy breed of independent inventors in the chemical field is one Edgar A. Ferguson, Jr., of Brooklyn. It is the writer's impression that this inventor has obtained over the years more patents than many of the corporations maintaining staffs of chemists.

It may therefore be of interest to take a look at the two most recently issued patents obtained by Ferguson. One, U. S. 2,844,586, relates to methapyrilene and thenfadil nicotinate. These materials are sedatives.

Methapyrilene consists of 2-2[(2-dimethyl amino ethyl)-2-thenyl amino]-pyridine. Thenfadil consists of 2-[(2-dimethyl amino ethyl)-3-thenyl amino]-pyridine. Nicotinic acid consists of pyridine-3-carboxylic acid.

The other patent, U. S. 2,844,587, deals with carboxyhistadyl and analogs which are antihistamines and soporifics.

The class of compounds (histadyl and thenfadil) may be classified generically as carboxy pyridyl methyl thienyl ethylene diamines. Specific compounds are: carboxy histadyl, (methapyrilene derivative), NN, dimethyl N′ 2 (5 carboxy pyridyl) N′ 2 methyl thienyl ethylene diamine and (the carboxy thenfadil derivative) NN dimethyl N′ 2 (5 carboxy pyridyl) N′ 3 methyl ethylene diamine.

From the brief account given above it will be apparent that the subject matter of both patents is anything but the chemical equivalent of gadgetry.

Brain Transfer

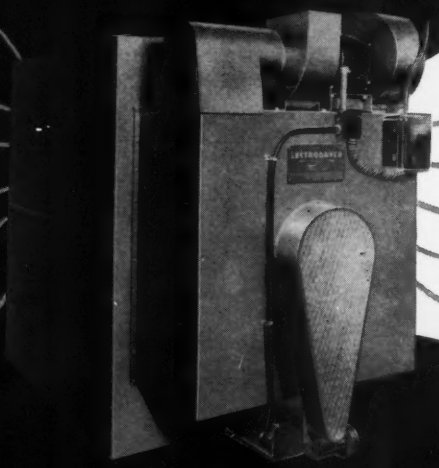
Surgeons have successfully performed operations on hearts after stopping them completely, utilizing heart pumps to circulate the blood while the operations are in progress. They have performed brain operations they wouldn't have dared to attempt only a dozen years ago. They have transplanted kidneys in identical twins. Eye and bone operations are so common that we have bone banks and eye banks. People will their eyes to eye banks; why not will their brains—if they have any.

It is a great pity that the brains of men like Einstein, Edison, Tesla, Pupin, Huxley and thousands of other great men have to die and become food for worms. Perhaps in twenty years surgeons will be able to transfer the brains of great men who are about to die into the skulls of husky young men who volunteer to trade poor brains for good.

Fifteen years ago some Russian scientists removed the head of a dog and kept it alive for several days and even made it bark. At the Rockefeller Institute a bit of chicken liver was kept alive and growing for years. For aught I know it may still be there.

Assuming for the purposes of speculation that human brains or even entire heads could be transplanted, some interesting questions arise: would the brain of a genius, transferred to the skull of a Harvard football player (football players usually have everything but brains) survive in its new environment, without loss of memory or knowledge, and would it continue to function perfectly when fed with fresh young juices? Would the person with the new brain have the same personality or would the new body become the old person?

REMOVE UNWANTED MOISTURE...



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Leading industries look to

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World's First and Foremost Manufacturer of Commercial and Industrial Adsorbent Driers

Assuming for the moment that the transplanted brain would continue to function as it always had, then no learning would be lost and unimaginable discoveries might be made.

We inherit everything from our forebears except knowledge. Every baby starts in the world educationally on a par with all others whether it is an Einstein or a Joe Doakes. Every generation starts from scratch and has to learn all the preliminaries all over again. And each generation in this complicated age must learn so much more and so much faster than preceeding generations that it is a pity we can't find some way of loading genes and chromosomes with acquired learning so that we could get off to a running start. Since that seems to be forever unlikely, it is equally a pity that we cannot find some way of salvaging the best brains. (This would make a good subject for an Aldous Huxley novel.)

There has been much discussion of sperm banks so that the seed of superior men need not be lost and in that way a superior race could eventually be produced. There has been much written about selective breeding for the same purpose. But the trouble is that superior men seldom produce mentally superior sons. History shows a few: the two Pitts and the Huxleys for example. The brilliant father usually produces a stupid son or sons and the stupid father is just as likely to produce a brilliant son or sons. Once in a while even a brilliant daughter. Now that I have given you some ideas for really fundamental research I hope you will get on with it.

Future Factories 1984

In the near future the plant managers of drug and cosmetic firms will become fat and flabby worms because they will have no work to do. Entire plants will be equipped with closed-circuit TV with reciprocal circuits so that not only will the P.M. be able to keep an eye on everybody in the plant but they will be able to keep an eye on him. He will be like Big Brother in Orwell's book *1984*. When he wants to give an order he won't have to push a certain button on an intercom. All he'll have to do is sit back in his chair and holler. The chair of course will be fitted with electric vibrators to keep him in reasonable trim without effort on his part. Cumulative hourly sales reports will trickle into his office from data processing machines and will be amplified on a visual screen. Stock reports and balances will come in from the plant and from branches all over the country. Production totals will automatically trickle in together with machine and labor performance data. He won't even have to go to the toilet. The toilet will be brought to him.

Almanacs

Although I still buy the Old Farmer's almanac, I miss the ones which were distributed fifty years ago by virtually every large proprietary firm in the country. It used to be fun to sit in a warm kitchen, redolent with the spicy smells of my mother's superb cooking, and read the almanacs on cold winter nights, while outside the wind howled and whistled and moaned around the sturdy eaves of the old house. The almanacs predicted the weather; gave directions for planting root crops and other directions for grain crops. There were recipes for spavined horses, sick sows, colic in calves. There were proverbs, quotations, atrocious poetry and directions for taking the stains out of all and everything. There were games and puzzles and mathematical tricks. There were lessons in etiquette. And of course it was made perfectly clear that Dr. King's New Discovery was good for consumption, colds, fever and ague, chilblains, heartburn, runny nose. All you needed was a bottle of Dr. King's New Discovery and faith and all your ills were cured.

Few companies turn out these almanacs now. Chattanooga Medicine Co. is one and I believe Miles Laboratories is another. An interesting fact is that the same Maine family has prepared the weather charts for several generations for all almanac producers.

It was a good custom and the almanac brought useful information into the remote corners of our country. Nowadays when a baby is born you can't tell its horoscope because there is no almanac around; it's impossible to tell anything without the zodiac table. You might be a Pices the fish and go through life thinking you are a Taurus the bull or even a Leo the lion!

Traipsin' Grote

The friends of Dr. Irvin Grote (the FIGS) will be interested to know that Dr. Grote has become chronically infected with *bacillus percentagus peregrinatus*. There is no cure for this disease. This bacillus thrives on a culture of long green folding money. The first symptoms of infection are itchy feet followed by an irresistible desire to go rushing around the world from Hell to Hackney. Like blind staggers in a horse. In the past few years Irvin has been in the damdest places like Afghanistan, Cawnpore, Khartoum, Beirut, Brooklyn and the Congo. Recently he visited Timbuktu. He is the first tourist of any nationality to visit this remote, god-forsaken place. He was treated by the natives with great respect because they thought he was out of his mind. They're going to build a monument to him. Undoubtedly he'll become one of the gods of voodoo. There are those among his friends who are certain when the gallivantin' mood is on him, that Irvin is slightly "teched;" while still others are convinced now that he must certainly be balmy after coming back from hell-hot Timbuktu. Only God knows where he'll head for next. Probably Russia. The fever has left him for the time being but his next big royalty check will make him glassy eyed again. Lup Patten calls this "the percentage gleam in Dr. Grote's eyes".

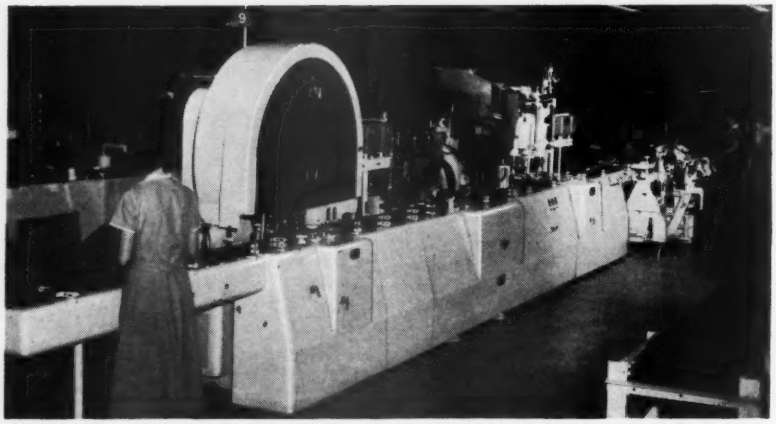
Modern packaging follows a pattern *Advertisement*

THE LEADERS LOOK TO PNEUMATIC

- New plants Pneumatic equipped
- Avon Products Inc., example
- More speed, flexibility provided

Where "modernization" is the order of the day, packaging is coming in for particular attention. More often than not equipment now in operation has been made obsolete by new design Pneumatic machines — developed for the faster, more efficient handling of dry, free flowing materials, as well as liquids and semi-liquids.

Pneumatic engineers have been exceptionally busy in the last few years, shattering previous standards of productivity through radically different approaches to the mechanics of packaging. Waste eliminating accuracies, and cost cutting speeds never before achieved, now feature the performance of the latest Pneumatic machines.



High-Speed conveyor-synchronized bottling line in operation at Avon's ultra-modern plant in Morton Grove, Illinois.

Leaders in their field — such as Avon Products Inc., makers and merchandisers of a line of nationally known cosmetics — are acutely aware of the absolute necessity to keep up-to-date in the all-important packaging phase of their production. In their sparkling new plant at Morton Grove, Illinois, their famous Avon Skin Freshener and Avon After Shaving Lotion, get the full treatment — from container cleaning right through filling, capping and labeling — on the very latest, fully synchronized high-speed Pneumatic lines. Without the slightest hesitation, on spaced centers to prevent jar or jostle from contact, the containers flow through the different stages as smoothly as oil through a pipe, with never a hand laid on them, from beginning to end.

Outstanding features of this equipment are the extreme gentleness with which it handles delicate, easily marred caps, and its easy adaptability to changes in container shapes and sizes. Within unusually broad limits, shifts from one to another may be made in short order — with minimum down time. Bottling will never be a bottle neck in this plant.

Keeping containers moving through the line with such automatic regularity and precision as to result in "lower cost per container" handling is a habit with Pneumatic machines. That, no doubt, is the reason why the country's leading producers have the habit of using them so extensively. Doubtless, also, it is the reason why so many other concerns "follow the leaders" to Pneumatic.

★ ★ ★ ★ ★

PNEUMATIC SCALE CORP., LTD.,
70 Newport Ave., Quincy 71, Mass.

Also: New York; Chicago; Dallas; San Francisco; Los Angeles; Seattle; Leeds, England. Canadian Division: Delamere & Williams Company, Ltd., Toronto

PNEUMATIC

Man Survives

The remarkable—I should say one of the remarkable—things about Man is his ability to survive the drugs that are administered to him. The late Dr. Leutscher, a colleague at Johns Hopkins of the great Osler, told me twenty-odd years ago that Osler was fond of saying that there were not more than a dozen drugs that were really basic. Of course that was before the sulfas and penicillin and Salk vaccine; the tranquilizers and the vitamins. Right now tons of vitamins are being taken daily that serve no useful purpose because the doctors have prescribed the wrong ones or because Joe Doakes takes a slug of vitamins every day because somebody has told him that vitamins are good for him on top of his corned beef and cabbage and beer. Tons of penicillin are being administered annually for conditions upon which it has no effect upon whatever. But Man survives. He survives his doctors and their accomplices the apothecaries. He often survives because the apothecaries know that the dosages prescribed by doctors are often lethal and they correct faulty prescriptions.

Dr. Leutscher, who at his retirement several years ago, was professor of internal medicine at Johns Hopkins, used to say that, barring necessary surgery. Nature in her own slow way will cure many if not most human ailments even without drugs if Man would have patience and suffer a few aches and pains while Nature is performing her restorative work. He used to say, further, that the most any doctor can do is to provide the conditions and directions under which Nature can best accomplish her work. This implied of course in many cases the use of the right drugs and the attention of a doctor who knew the right ones from the wrong ones.

But unfortunately the practice of medicine—at least in its diagnostic phase—has not kept pace with the scientific products the pharmaceutical industry has provided for doctors' use. When a pharmaceutical manufacturer sells a new drug and claims that it will relieve or cure fallen arches, you can now be damn well sure that it does, because he cannot get a license to sell it until he has produced enough clinical evidence that the product actually works and is, moreover, non-toxic, to satisfy the tough requirements of the FDA. But that doesn't prevent physicians from prescribing it for fallen womb or falling hair.

Doctors are notoriously partial to certain drugs and it doesn't matter a damn what they are indicated for. When I was a kid working in a drug store it was an easy chore to fill the prescriptions of a certain well-known local doctor because the prescriptions almost always called for calomel in one dosage form or another. If doctors were like that forty-odd years ago what are they like now? Just the same. Only now more so because they have such high office rent and a lot of equipment to pay for. Besides they are so busy specializing in everything but diagnosis that they haven't time to think deeply about an individual's case. And they can't specialize in diagnosis; it requires too much time. But still Man survives. He survives the wrong diagnoses and the wrong medicines. But the next time he gets a pain in the anus he rushes right back to the doctor for more of the same sort of treatment. From the drug industry point of view, thank God he does. Man survives because he is basically a tough old bird. He'll survive H bomb fallout; he'll probably grow to like it.

The Cup Races

Sir John Walmsley, Managing Director of Squibb in England, lost a bet to me on the recent cup races. I told him we could beat the Septre with one of Moran's tugboats. It was inevitable that we would win of course but I am sorry we won so easily. I was told that the designer of the Septre, J. Douglass Mathews, famous English yachtsman and amateur architect, is planning to use the hull in which to grow pansies.

Hotrodder

Nuclear Systems Division of the Budd Company, Philadelphia 32, Pa., have introduced the Hotrodder, a self contained cobalt 60 irradiator for research studies of ionization radiation on pharmaceuticals and other products. For a long time the trade has been dabbling with sterilization of parenterals by radiation, but nobody so far as I know has made a production installation of any such system although preliminary research studies by several firms show much promise.

New Karl Kiefer Developments

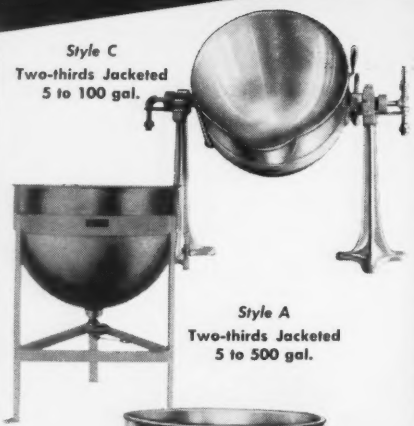
The letter below from my good friend Paul Fechheimer, Veep of Kiefer, describes several of the interesting recent developments of Kiefer filling equipment so well that I am passing it on to you Verbatim. *Nice work Paul.*

"Dear Frank:

"It has been a long time since Jimmy and I have had the opportunity of talking to you. We both feel that, once in awhile, you ought to ride the circuit and call on your constituents! The purpose of this letter is primarily business, but I assure you I would much rather have a drink with you and exchange jokes!

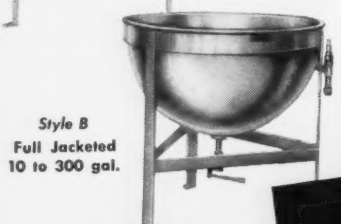
"We would like to give you some information for your column which we think will be of interest to you. We have been doing a considerable amount of development work in the filling of liquid products. You are familiar with our Pressure-Vacuum Fillers which have been in use for several years. We now offer a modification of either our Pressure-Vacuum or Vacuum Fillers which will minimize turbulence and air entrainment, increasing the speed per filling station as much as 100 per cent even on non-foamy products. On foamy products, the increase in speed can be even greater. This type of equipment is giving

COOKING KETTLES

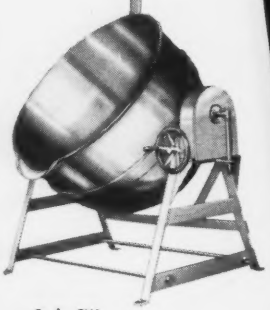


Style C
Two-thirds Jacketed
5 to 100 gal.

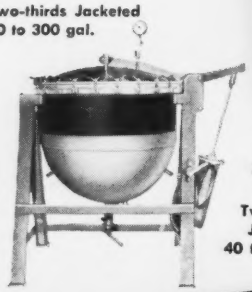
Style A
Two-thirds Jacketed
5 to 500 gal.



Style B
Full Jacketed
10 to 300 gal.



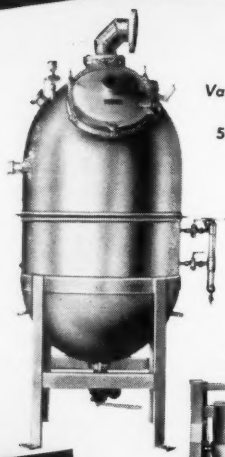
Style CW
Two-thirds Jacketed
80 to 300 gal.



Pressure Kettle
Two-thirds Jacketed
40 to 200 gal.

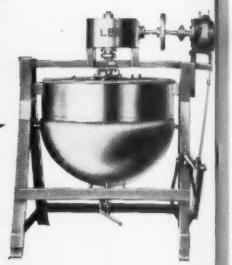
MIXING AND BLENDING UNITS

CW3T
Center-line Scraper Agitator Kettle
80 to 300 gal.



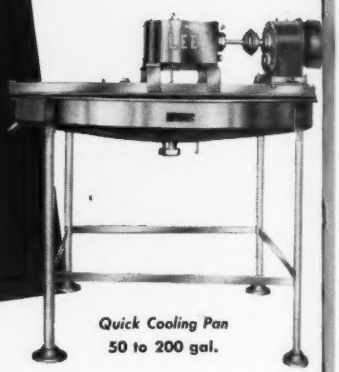
Vacuum Pan
50 to
500 gal.

D3T
Center-line Scrape Agitator Kettle
25 to 300 gal.



these LEE Units

WILL REDUCE YOUR PROCESSING COSTS!

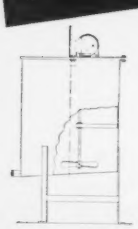


Quick Cooling Pan
50 to 200 gal.

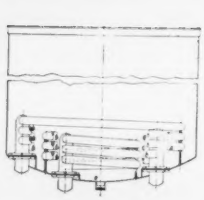
Individually designed for a specific processing operation and available in a wide range of sizes to fit your exacting requirements, Lee corrosion-resistant equipment is built to give you long years of peak performance with minimum maintenance.

Descriptive bulletins are available for any or all of the above units. Write for them today and discover how Lee can help reduce *your* processing costs.

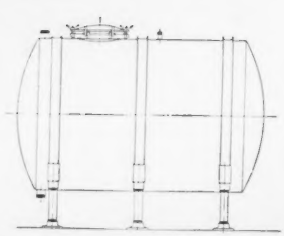
MIXING, COOKING & STORAGE TANKS



Mixing Tank
25 to 500 gal.



Pulp Tank
500 to 2,000 gal.



Storage Tank
100 to 5,000 gal.

LEE METAL PRODUCTS CO., INC

408 PINE STREET,
PHILIPSBURG, PA.

ALL LEE KETTLES ARE MADE TO A.S.M.E. COD

remarkable performance on some of the foamiest detergents even in the oddest shaped bottles which make filling with minimum turbulence quite difficult.

"In addition to the above development, we also have our very ingenious "Pin Point" unit. This device was produced to meet the challenge of the new dense plastic bottles which are being produced with extremely thin walls. These bottles are so weak relatively that they cannot withstand any appreciable downward pressure on the neck without forcing the neck into the shoulder, resulting in inaccuracies of fill. Moreover, they will withstand practically no vacuum at all, and even our Pressure-Vacuum Unit, which results, at the conclusion of filling, in a slight super atmospheric pressure internally, will cause bulging of the walls. This amount of bulge is not uniform and therefore also results in inaccuracy of fill.

"With our new "Pin Point" development, we fill tirely different filling principle. Constant level fillers, in the past, always achieved this end by sealing the container and, when the container was filled, building up in the head space a counter pressure the equivalent of the applied filling pressure. When this balanced situation is achieved, there is no further rise of the liquid level. There will be continued flow of liquid into the container, but whatever excess flows in will also be withdrawn through the vent or vacuum tube.

"With our "Pin Point" development, *no* seal is applied to the container. The prdouct flows into the container purely as a result of air pressure applied above the liquid in our supply tank. This air pressure is controlled from a conveniently located panel at the front of our machine and can be accurately regulated to suit. The filling tube is substantially the same as that used on standard Vacuum Fillers, and the vacuum is drawing all the time but does not assist in the filling process. It is utilized for two purposes. As soon as the liquid level rises to the vacuum tube orifice, the level of vacuum in the conduit increases because of the greater fluid friction of the liquid as compared with the air which, up to that time, has been flowing through the tube. This increase in vacuum is sensed, and this factor is utilized to shut off the flow of product. Since there is a time delay in shutoff, even though extremely brief, there will be a slight overfill. That is, the liquid level will rise slightly above the vacuum tube. However, pause is allowed for the vacuum to draw off the excess liquid so that every container is filled to a hair-line accurate level. The results are miraculous!

"Since the vacuum tube orifice is at the bottom terminus of the filling stem, the fill is absolutely clean and without a drop of drip.

"This development has made it possible to fill the thin-walled plastic containers with substantially the same ease and speed with which glass containers can be handled.

"Another enviable side of this accomplishment is the inherent No Container-No Fill Device. Unless a container is properly in position, the product flow valve will not open. It's smart!

The mechanism is extremely simple. No electronic devices are utilized.

Jimmy joins me in kind regards,

Sincerely yours,
P. R. Fechheimer
Vice President
The Karl Kiefer Machine Co."

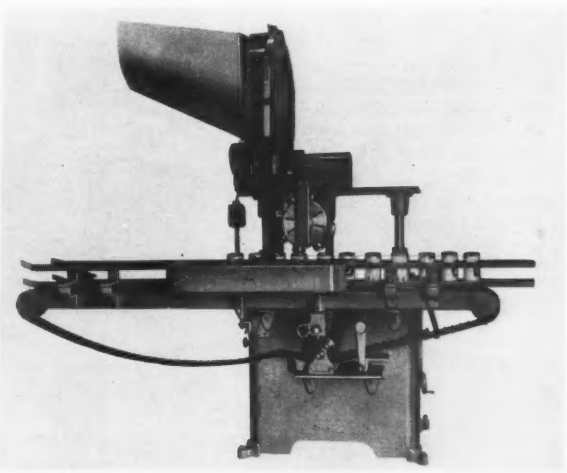
Friction Lid Innersealer for High-Speed Production Lines

Application of friction lids of all sizes can be integrated into any high-speed production line with the new Model CIS-A fully Automatic Friction Lid Innersealer, a product of Resina Automatic Machinery Company, Inc., 572 Smith Street Brooklyn, N. Y.

The Model CIS-A can be placed in any operation now using standard filling machinery. Its vari-speed drive conforms the machine to existing production line speeds. In fully automatic setups, the machine runs without an operator, sorting, feeding and applying lids. The new Resina Innersealer applies metal lids to round or rectangular fibre or metal cans of multiple sizes.

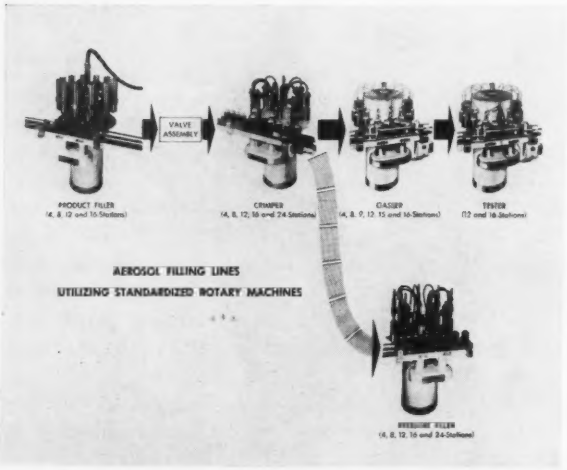
Because it operates with a straight-line motion, Model CIS-A assures no toppling or spilling. Applications are made at speeds of from 40 to 120 per minute, with higher speeds obtainable with special models. The machine is powered by a ½ H.P. motor, has automatic lid control (no container—no lid), and positive lid placement and seal.

Because all containers are automatically indexed by a universal timing unit built to cover the entire container range, no parts change is required for handling different sized containers. Only a few simple adjustments are necessary, complete changeover is accomplished in 15 minutes and the entire operation can be handled by non-skilled workers.



New Rotary Machines Meet Aerosol Filling-Line Requirements

A new Colton-Alpha production line designed to meet a wide variety of aerosol container filling requirements from 60 to 200 cans per minute is announced by Arthur Colton Company, 3400 East Lafayette, Detroit 7, Mich. This line is made up of a unique series of individual continuous rotary machines, each performing a specific operation in the product filling, valve crimping and pressurizing process. A star wheel arrangement at the front of each of the machines removes containers one-at-a-time from the conveyor line, and deposits them in stations on the periphery of a rotary drum. The particular filling, crimping or pressurizing operation is performed while the containers travel around with the drum and are redeposited on the conveyor line.



Each machine is available in a variety of station numbers to suit specific requirements. Variable speed drives for each of the rotary drums permit accurate synchronization of the various functions.

The type of propellant selected by the manufacturer dictates the type of equipment needed in an aerosol filling line. If fluorinated hydrocarbon or other hydrocarbon propellants are to be used, space above the product container must often be evacuated. Colton-Alpha crimping machines provide a unique crimping and vacuum-propellant purging function that gives a maximum concentration of propellant in the space above the product.

Fluorinated hydrocarbon and related propellants are added in their liquid state. The Colton-Alpha method of pressure filling at 500 to 600 psi with only one electrical connection to a motor, which can easily be explosion-proofed, eliminates what can be a hazardous operation with butane or propane propellants.

When nitrogen or carbon dioxide gas mixes are used as propellants, individual gasser and tester functions follow the crimping operation. For propellants

Coding Attachment for Cans, Jars, Bottles

- ***Imprints flat, concave, deeply recessed surfaces***
- ***Saves cost of altering conveyor line***

The Gottscho "Model TB" MARKOCODER® machine is a unique, fully automatic, packaging line attachment for coding *bottoms* of cans, bottles, jars, canisters, paper containers at high speeds. Makes consistently clean, permanent ink imprints. Designed for quick code changes, simple maintenance, easy adjustment for different sizes. Offers all the advantages of a fixed-installation imprinter without requiring alteration of present set-up.

First and foremost in automatic production-line CODING, MARKING and IMPRINTING machines

Gottscho®

Write for Bulletin "TB"

GOTTSCHO, *Dept. C* • **HILLSIDE 5, N. J.**

In Canada: Richardson Agencies, Ltd. · Toronto & Montreal

that have to be mixed with the product, a shaking operation is performed at each station on Colton-Alpha gassers.

All machines in the standardized Colton-Alpha rotary-index line have no-can, no-fill features. One motor in the base of each of the machines drives the rotary drum and star index wheel.

The machines are available in five models as shown in the figure, page 780.

PerfeKtum Ampfil Fills Mascara Containers with Accuracy

The PerfeKtum Ampfil Model F-400X fills mascara containers with cost savings, accurately and dependably. It simplifies handling of the new style pen-type mascara applicators.

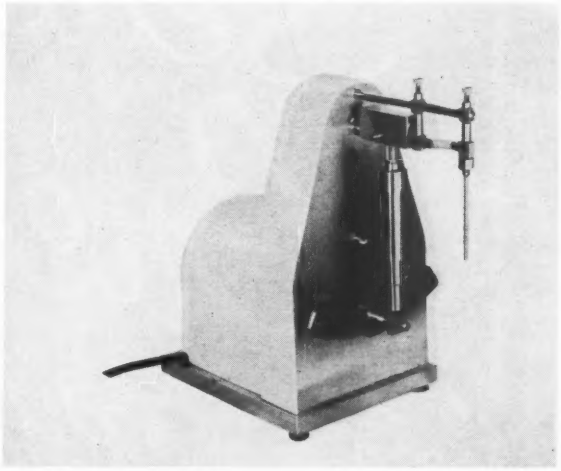
Cosmetic manufacturers are discovering new filling applications for this versatile machine. Mascaras have recently been added to the list of products which can be more easily dispensed with the aid of this apparatus.

Unique design and construction facilitate disassembly of stainless steel contact parts for cleaning. Sturdy construction with built-in stamina insures many years of trouble-free performance.

In many packaging departments where cosmetics are handled, the Model F-400X is filling a wide range of cosmetic products and containers from 1cc. to 1 ounce. Aerosols, colognes, creams, emulsions, lotions, oils and spirits are all dispensed with ease and accuracy.

A specially designed 1-gross rack or plate is ideal for use with small mascara tubes and other similar containers. It eases the handling problem during and after filling.

For further information write to Popper & Sons., Inc., 300 Fourth Avenue, New York 10, N. Y.



LOOK TO U.S. *for Every* LIQUID FILLING NEED!

YOU CAN SPARK your entire packaging operation *with the right filler!* Anything short of that can snarl your packaging pace.

With decades of liquid filling know-how, U.S. can custom-engineer your filler to fit your operation *precisely.*

FOR RECOMMENDATIONS, please specify: *Your product, size and type container and desired filling rate per minute, hour or day.* No obligation implied. Address the home office.

MODEL B-49 STRAIGHTLINE VACUUM FILLER. Most automatic one-operator multiple filler. With or without discharge conveyor. Contact parts of stainless steel, plastics on order. Adjustable for container sizes from AGST to gallon size finishes. Send for Model No. B-49 Bulletin.

MODEL B-2 VACUUM FILLER. Continuous production. Two containers always filling. For liquids and semi-liquids. Vacuum is adjustable, and flow is regulated. Handles containers up to 4½" dia. Fast, efficient. Send for Bulletin B-2.

U. S. SIPHON FILLER. For all liquids including foamy products or products that do not permit agitation. Stainless steel tubes; acid resistant glass lined tank. Adjustable for all containers. Send for the Siphon Bulletin.

HAND FILLER. Highly perfected advanced type. Send for the Hand Filler Bulletin.

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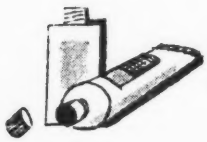
SPECIALISTS IN LIQUID FILLING AND CONTAINER CLEANING EQUIPMENT

Season's Greetings -by the Tons

- Our sincerest thanks for the privilege of serving you
- Our best wishes for a very successful and prosperous New Year

FROM THE
VITAMIN DIVISION
HOFFMANN-LA ROCHE INC.
in the United States and Canada
and our distributors



Advancing Therapy

Hydrochlorothiazide

Hydrochlorothiazide, a new, more potent derivative of chlorothiazide ("Diuril") was described by Dr. Karl H. Beyer, vice president of the Merck Sharp & Dohme Research Laboratories, division of Merck & Co., Inc. The new compound has been made available for clinical research under the trademark "HydroDiuril."

Based on limited clinical studies, "HydroDiuril" appears to have the same biological effects and indications for therapy as "Diuril."

Speaking at a postgraduate course in internal medicine of the University of Kansas Medical Center, Dr. Beyer emphasized that "HydroDiuril" is still in the clinical research stage and much work remains to be done before its biological effects are fully known. "HydroDiuril" must be evaluated with extreme care to be sure that its increased potency is not accompanied by side effects not encountered with "Diuril."

Cancer Drug

U-8344, an Upjohn Company antitumor drug, has been tested clinically in 75 patients, with encouraging results against lymphomas and chronic leukemias; it seems to work even after resistance to other drugs has developed and against fast growing tumors. Toxicity is low even after six months of treatment and preliminary study has begun with solid tumors, usually unaffected by other drugs.

U-8344 is 5-bis(2′-chloroethyl)-aminouracil and shows a wide spectrum of activity in animals against Walker 256 carcinoma, Murphy-Sturm lymphosarcoma, Shay myelogenous chloroleukemia, Sarcoma 180, Leukemia L-1210 and Carcinoma 755. Tumors remaining after therapy seldom resume growth. Using minimum effective doses of the chemical, toxicity seems almost negligible. No cardiovascular or autonomic activity or effect on the liver was exhibited, but prolonged use caused slight bone marrow depression and leukopenia. The drug can be administered orally or intraperitoneally.

Glutamine

Glutamine, an amino acid which eventually may have important medical uses, has been synthesized in the Lilly Research Laboratories by a novel and much less expensive method.

The process, developed by Dr. G. Bruce Kline, organic chemist of Eli Lilly and Company, is expected to spur glutamine research by sharply cutting costs.

In the new process, alpha-ketoglutaric acid was condensed with hydrazine to obtain a cyclic intermediate—1,4,5,6-tetrahydro-6-oxo-3-pyridazinecarboxylic acid. This was then hydrogenated in the presence of palladium-on-carbon as a catalyst to yield dl-glutamine.

Codeine Potentiation

The reaction product of codeine and appropriate synthetic ion exchange resins has been demonstrated by B. A. Becker and E. E. Hays (*Proc. Soc. Exptl. Biol Med.* 99: 17, 1958) to possess analgetic properties of codeine. The resin-complex has a longer duration of action than does soluble forms of the drug. Codeine analgesia has been potentiated by methylatropine and 2-methyl-3-orthotolyl-4-quinazolone. Both the resin complex and soluble salt forms of codeine are potentiated by these agents. Resin reaction products of methylatropine and 2-methyl-3-orthotolyl-4-quinazolone have been prepared. Both of the drug resin combinations exhibit prolongation of action, including the property of codeine potentiation, the latter drug being more potent in this respect. Combinations of codeine-resin complex and of methylatropine or 2-methyl-3-orthotolyl-4-quinazolone in resin complex form are potent, long acting analgesics in the rat.

Phenothiazine for Shock

Pretreatment of rats with perphenazine or chlorpromazine afforded significant protection against lethal effects of trauma according to F. E. Roth et al. (*Proc. Soc. Exptl. Biol. Med.* 99: 157, 1958). Chlorpromazine was still effective at doses of 0.2 to 0.4 mg/kg, whereas perphenazine was not protective in this dose range. Pretreatment of dogs with perphenazine significantly protected against lethal effects of hemorrhage under aseptic conditions. Chlorpromazine did not display significant protection at 1 mg/kg, but it did appear to be effective at 3 mg/-kg in a limited study. Both drug treated groups bled the same maximal volume as did the controls but at much slower rates when systolic pressure was maintained at 30 mm Hg.

Reserpine Animal Feed

Reserpine has been cleared for sale as an animal feed additive by the Canadian Food and Drug Directorate, but the new feed additive is not yet commercially available; a similar application is now awaiting approval by the U. S. Food and Drug Administration.

Ciba has been conducting laboratory and clinical studies of Serpasil, its brand of reserpine, as a stress ameliorating agent in animals for over three years. At the present

time, extensive studies are being conducted in the United States at Rutgers University, the University of Massachusetts, Oklahoma State University, South Dakota Agricultural Experiment Station, University of Georgia, Texas A & M, United States Department of Agriculture in California, Michigan State University, Cornell University, Purdue University, University of Rhode Island and University of Missouri.

Current investigations are concentrated in the poultry field but data are being accumulated in other animals including lambs, beef and swine. These include studies of efficiency of weight gain; egg production; improved egg quality; reduced feed waste; reduced cannibalism; reduced shrinkage during transit; increased resistance to disease. Alterations of these functions are influenced by many stress conditions associated with many factors. Positive evidence has been obtained that Serpasil will influence performance when one or more stress factors are present.

In poultry feeds, reserpine is recommended in concentrations of 0.5 to one gram per ton of feed. The new feed additive will contain 0.8 per cent of Serpasil in soybean flour.

Daranide (Merck), generic name dichlorphenamide, is new, highly potent orally effective carbonic anhydrase inhibitor for the treatment of glaucoma. It is available as 50 mg. tablets in bottles of 100.

Aludrox SA (Wyeth) is a combination of 2.5 mg. of ambutonium bromide and 8 mg. of butabarbital with aluminum hydroxide equivalent to one teaspoonful of the gel and magnesium hydroxide equivalent to one-fourth teaspoonful of milk of magnesia in one tablet or in a 5 cc. teaspoonful. The preparation is indicated in the treatment of peptic ulcer and other serious gastric disturbances and is supplied in botles of 100 tablets or 12 ounces of the suspension.

Compocillin-VK (Abbott) is the potassium salt of penicillin-V in readily soluble granules which when reconstituted with water form a cherry-flavored solution for oral administration. Available as bottles containing one and two grams, to make solutions containing 125 mg. or 200,000 units per teaspoonful.

Vi-Sorbin (SKF) contains in each 15 cc., 25 mcg. of B-12, 6 mg. of B-6, 300 mg. of ferric pyrophosphate and 1.5 mg. of folic acid and D-sorbitol as an absorption enhancement factor.

Dartal (Searle) is thiopropazate dihyrochloride, a tranquilizer, with the chemical description of 1-(2-acetoxyethyl) - 4 - [3 - (2-chloro-10-phenothiazinyl) propyl] piperazine dihydrochloride. It is supplied as 5 or 10 mg. tablets in bottles of 50 and 500.

Signemycin Syrup (Pfizer) in each teaspoonful contains 42 mg. of oleandomycin as triacetyloleandomycin and the equivalent of 83 mg. of tetracycline hydrochloride in a raspberry flavored ready-mix syrup and is sold in 2 ounce and one pint bottles.

Midicel (Parke-Davis) is a sulfa compound, sulfamethoxypyridazine, available as 0.5 gm. tablets in bottles of 24 and 100.

Cerumenex (Purdue Frederick) is a preparation for removing excessive accumulations of ear wax. It consists of 10 per cent of Cerapon (triethanolamine polypeptide oleate condensate) in propylene glycol with 0.5 per cent of chlorobutanol. It is sold in 15 cc. dropper bottles.

Bonamine Elixir (Pfizer) is a cherry-flavored liquid formulation containing meclizine equivalent to 12.5 mg. of the hydrochloride in each 5 cc. teaspoonful. It is sold in pint bottles.

Kynex Pediatric Suspension (Lederle) is a cherry flavored suspension of acetyl sulfamethoxypyridazine, each 5 cc. teaspoonful containing 250 mg. of Kynex. The preparation is sold in 4 oz. bottles.

Dipral (Charles C. Haskell) is an antirheumatic preparation. Each tablet contains 62.5 mg. of Dipyrone, 192 mg. of salicylamide, 192 mg. of para-aminobenzoic acid, 20 mg. of ascorbic acid and 2.5 mcg. of vitamin B_{12}. The tablets are supplied in bottles of 100 and 1,000.

Candettes Cough-Jel (Pfizer) is a cough preparation in the form of a gel. Each 5 cc. teaspoonful contains 7.25 mg. of carbapentane citrate as the active ingredient. The raspberry-flavored gel cannot be spilled and coats the throat. It is supplied in plastic squeeze-tubes containing 2 ounces.

Candettes Cold Tablets (Pfizer) contain 97 mg. salicylamide, 97 mg. phenacetin, 20 mg. caffeine, 5 mg. phenylephrine hydrochloride, 10 mg. pheniramine maleate and 20 mg. vitamin C, in packages of 24 tablets. The preparation is intended to provide fast, effective relief from symptoms of the common cold.

Sterotril (Schering) is a combination of 2.5 mg. of prednisone and 2 mg. of perphenazine for the treatment of conditions responsive to steroid therapy and involving stress situations. The tablets are available in packages of 30 and 100.

Deltasmyl (Roussel) tablets contain 1.5 mg. prednisone, 120 mg. theophylline, 15 mg. ephedrine hydrochloride and 8 mg. phenobarbital and are intended for the relief of asthmatic seizures. The preparation is sold in bottles of 100 tablets.

Parafon (McNeil Labs.) Each tablet contains 125 mg. of chloroxazone and 300 mg. of acetaminophenol for the relief of pain and stiffness associated with skeletal muscle spasm. The preparation is supplied in bottles of 50 tablets.

Cathozole (Merck Sharp and Dohme) is available in tablets containing 125 mg. of novobiocin as the sodium salt and 375 mg. sulfamethylthiadiazole, in bottles of 24 and 100.

Lipomul I.V. (Upjohn) contains in each 100 cc. four grams of dextrose, 15 grams of cottonseed oil, 1.2 grams of lecithin, 0.3 grams of oxyethyleneoxypropylene polymer. The preparation provides intravenous fat and carbohydrate calories to patients unable to take adequate food by mouth for any considerable period of time. It is available in a 600 cc. bottle containing 500 cc. of the emulsion with the recommendation that not more than 1,000 cc. be administered daily for a total not exceeding seven liters.

Hormozyme (Upjohn) contains 0.67 mg. of fluoxymesterone, 0.015 mg. of ethinyl estradiol with vitamin A, D, thiamine mononitrate, riboflavin, pyridoxine hydrochloride, B-12, ascorbic acid, nicotinamide, calcium pantothenate, folic acid and calcium phosphate in each tablet. The preparation is a combination of androgenic and estrogenic hormone with vitamins for metabolic as well as hormonal action. Supplied in bottles of 100 tablets.

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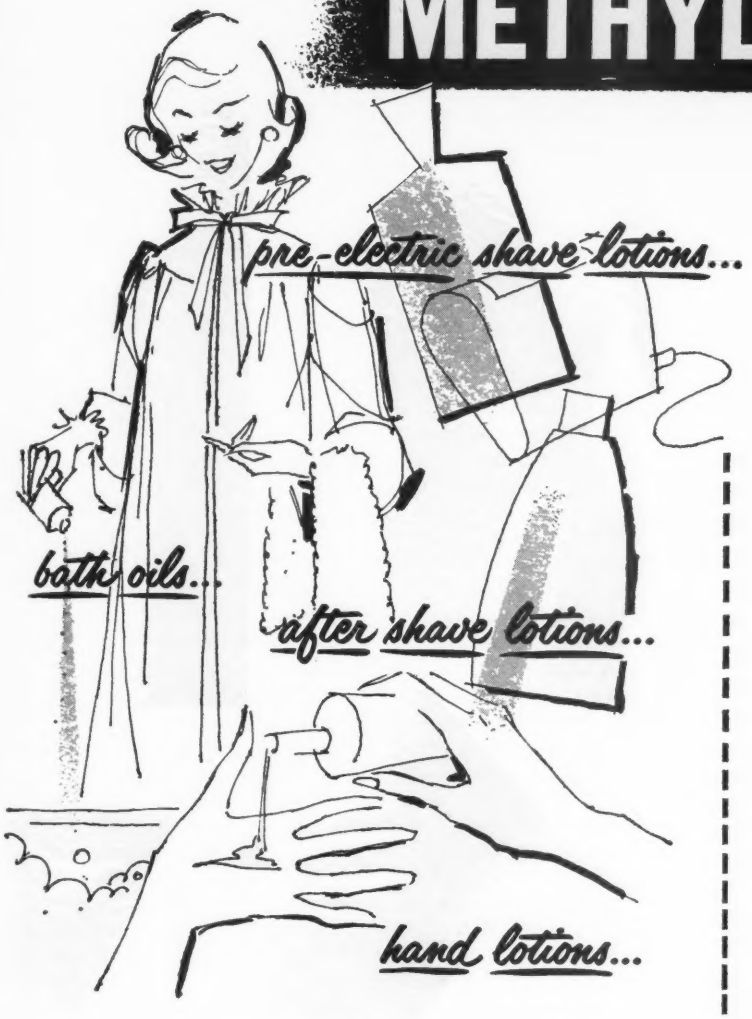

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Perfumer's Shelf

Soap Perfumes

When everyone worries about why the perfume does not last in the beautiful Christmas bas of toilet soap, they should remember that Faurnet gives a list of those material that resist alkalies.

Alcohols
- Terpineol
- Geraniol
- Citronellol
- Rhodinol
- Phenylethyl alcohol
- Linalool
- Santalool

Naphthyl Ethers
- Yara yara (2 - methoxynaphthalene)
- Bromelia
- Diphenyl ether
- Phenyl methyl ether
- Benzyl methyl ether
- Bromostyrene

Ketones
- Ionone
- Methylionone
- Methylacetophenone

Phenyl ethers
- Safrol
- Isodafrol
- Hydroquinone dimethyl ether

Esters
- Benzyl benzoate
- Benzyl cinnamate
- Methyl cinnamate
- Ethyl cinnamate
- Bornyl acetate

In Use Test

Have you ever seriously concerned yourself with, "acceptance and rejection thresholds" when you are odor testing your cosmetic product?

It would be wonderful to threshold test all executives, their secretaries, the boss's wife and especially his sister-in-law who really knows perfumes.

Gundelack, R. H. & G. Kenway set forth a wonderful paper, "A Method for the Determination of Olefactory Thresholds in Human," *J. Exp., Psychol.* 24: 192, 1939.

Maybe this is why some wonderful perfumes get booted by the P.A.'s skirty helper; never get by the chemist's bench; get lost at the group leader's secretary's nose; pass out at the research director's desk; collapse at a salesmanager's luncheon (with a good customer who knows perfume); stagger horribly at an executive vice president's golf game (19th hole); and pass out with their perfumery venture assailed at a fast 11:00 A.M. pre-lunch products meeting. No wonder the president says to his luncheon guest, "It sure is hard to find out what kind of a perfume a woman wants."

Maybe if you think about this gestation of a perfume, you might enjoy reading Pechtel, Card, Massermar, "The Osmatic Response of Normal and Neurotic Monkeys," Ann. N. Y. Acad. Sci. Vol. 58 art. 2.

Jill Jessee, in her Perfume Album, put it so well, Do women like it? And for *how long* do they like it?

Don't hope to get a woman's reaction to a perfume by smelling it on a blotter, don't predetermine her reaction by smelling a jar of perfumed product.

If she lives with it a week, a month, on her hands and arms, face, lips or hair, she'll tell you then for real.

This is otherwise known as the "In use test."

Fenugreek Oil

Fenugreek is an important flavoring agent and a most useful, if rarely encountered, perfumery material according to F. V. Wells (*S.P.C.* 31: 1081, 1958). The works of Felix Cola, Rene Cerbelaud and Paul Jellinek contain no reference to fenugreek, but W. A. Poucher's "Perfumes, Cosmetics and Soaps," and Y.-R. Naves' "Natural Perfume Materials" both contain monographs on this plant and its uses.

Trigonella foenum-graecum, known as fenugreek or foenugreek, is an annual herb of the Leguminosae family. Its seeds are widely used in the making of curry. They also find application in mango chutney, imitation maple extract, cattle and horse foods, poultices, ointments and plasters. According to Naves, fenugreek extracts are used, in America, in association with vanilla and coffee extracts, and as ingredients of tobacco flavors.

The characteristic odor of fenugreek suggests celery and opoponax, but has a heavy and rather musty sweetness that recalls burnt sugar or, more closely, the *moutwjn* (malt wine) background of Hollands gin. One of its chief odorous constituents may well prove to be a member of the coumarin-umbelliferone group.

Fenugreek oil is obtained in low yield by distillation of the seeds. It is brown in color and intensely odorous. Solvent-extracted absolutes have also been prepared. Poucher suggests that "in minute traces, the oil may be used in aldehydic perfumes." Emphasis should be placed, perhaps, on the intensely powerful character of its odor, and the desirability, therefore, of using it in 20 or 10 per cent dilution.

Musk in Cologne

The presence of musk in Eau de Cologne mutes the citrus note and accentuates the perfume character, according to Hans Schwarz, *Seifen, Oele, Fette, Wachse*, 1958, pp. 181-2. The history and derivation of natural musk is briefly outlined. A tincture of the natural material is made by mixing 30 grams of tonquin musk with an equal amount of talcum or lactose and adding 100 cc. of 95 per cent ethyl alcohol. The mixture is left to stand six months prior to fil-

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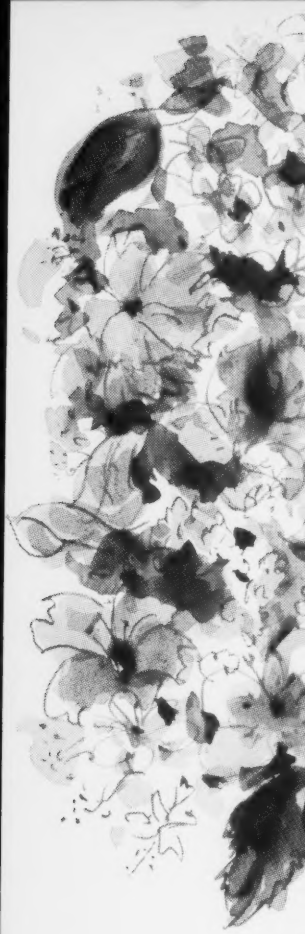

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tering. Another method involves mixing 25 grams of musk with 35 grams of powdered pumice and extracting with one kilo of ethyl alcohol. This takes four weeks. The mixture is then placed in a percolator and drained three to four times.

Ketone and xylol musks are not very soluble in alcohol and are insoluble in water. Suitable solvents for artificial musk are cinnamein (benzyl cinnamate), benzyl benzoate, and diethyl phthalate. Maximum solubility is 20 per cent at 40°C.

In the last decades the addition of musk to cologne has become more popular. Another component which has gained popularity in colognes is the oil of sclary sage (salvia sclarea), a plant indigenous to North Africa and Southern Europe.

The following ingredients are suggested for a cologne with musk:

	grams
Neroli oil	100
Rosemary oil	80
Lavender oil	100
Orange oil	120
Bergamot oil	300
Lemon oil	300
Sclary sage oil	100
Tincture of musk, natural	50
Ketone musk in benzyl benzoate	100

The solution of ketone musk in benzyl benzoate is prepared by placing 200 grams of the musk in a dry flask, adding 800 grams of benzyl benzoate, placing the mixture in a water bath at 40°C., and shaking the flask at intervals, until completely dissolved.

A modern formula for Eau de Cologne without musk might have the following composition:

	grams
Oil of wintergreen	20
Special pine needle oil	40
Olibanum extract	40
Octyne carboxylic acid methyl ester (1:50 in alcohol)	10
Neroli oil	100
Rosemary oil	100
Bergamot oil	300
Lemon oil	310
Lavender oil	80

Olibanum has proved itself to be a good fixing compound.

Eau de Cologne of good quality has a concentration of at least four per cent. Minimum aging period must be three months.

Carrot Seed Oil

Daucus or carrot seed oil has interesting possibilites in the hands of an experienced perfumer. It exhibits a characteristic odor, strongly reminiscent of the breadlike fragrance of fresh iris root, according to Dr. Faber, *Parfumerie und Kosmetik*, 1958, pp. 65-67. It is therefore very natural to combine daucus oil with iris fragrances. Its presence adds emphasis to the methyl ionones and changes their woody note into a herbaceous, rooty type. However, the odor of natural carrot seed oil is rather too acrid and bitter for high class perfumery. Once it has been processed for removal of the terpenes, its fragrance becomes much milder and offers the best olfactory characteristics of carrot oil in a purified form.

The author suggests a powder oil which contains in addition to daucus oil (terpeneless), an iris fragrance and a combination of woody notes. Other formulations given include a composition for lotions, after-shave preparations and shaving cream. Two rose type oils are suggested for incorporation in face creams. Both contain terpeneless daucus oil. A soap perfume incorporates carrot seed oil in its unprocessed form.

Cineol Oils

The characteristic odor of Ceylon or Malabar cardamon oil arises from its cineol content. The distilled material is one of the most expensive essential oils, according to Dr. Faber, *Parfumerie und Kosmetik*, 1958, pp. 268-9. If unadulterated, and particularly if distilled in Europe, cardamom oil has an exceptionally pleasant and spicy fragrance. Small quantities are sometimes used in high class perfumes. If cost can be disregarded, cardamom oil can be incorporated in larger amounts into perfume bases for cosmetic creams. A formula is given for a muguet-cyclamen-freesia type fragrance. Cardamom oil may be formulated into a lavender type product suitable for perfuming men's toiletries such as after-shave lotion or hair tonic.

Terpeneless cardamom has a very "light" odor note, and is suggested for applications where solubility is a consideration. A combination with Russian leather and lavender, bodied by phenacylene is said to yield pleasant results.

Cardamom extract or resinoids are softer in fragrance than the oil. But the color properties of the extract complicate its use in larger percentages. Whenever a characteristic cardamom note is desired, it is advisable to combine the oil with the resinoids.

Ginger oil is another cineol-containing essential oil. The spicy odor of this oil is not very strong but has great clinging power. The perfumer does not use it as the "carrying" ethereal oil, but only to achieve special effects, especially oriental notes. In some instances ginger can take the place of the expensive cascarilla oil, although its odor is less pointed and of a more spicy character. Formulated with an Eau de Cologne base and a dianthus base, ginger oil enhances the note of old spices without being obtrusive. This type of odor is much sought after for men's personal products.

A base for "eau de cologne Russe" can be formulated with ginger oil. The formulation is based on a new specialty odor of novel fecal character. The leather component can be contributed by any suitable fragrance which, however, must not be dominated by a birch tar oil top note. Rather surprisingly, ginger oil does rather well in pure flower combinations. "Nardo espagnol," a Spanish tuberose perfume can be formulated with Chinese ginger oil. Great clinging power is claimed for such a recipe given by the author who suggests its use for the Spanish and South American market.

Sandalwood fragrance for soap can be an expensive proposition, and the soap perfumer may frequently be surprised how much good East Indian sandalwood oil can be swallowed by a soap batch, without producing a commensurate olfactory effect. The soap perfumer may decide to use lower-priced West Indian sandalwood or other cedar type wood oils. However, addition of ginger oil, combined with other natural and synthetic building blocks can reinforce the sandalwood fragrance and permit the use of this fragrance in ordinary toilet soaps without making such products prohibitively expensive. Such soaps should be colored greenish brown or brown, as is usual with this type of product. The availability of sandalwood specialties especially for toilet soaps, should not be overlooked.

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Compounder's Corner

Cold Wave Mercaptans

J. G. Voss of Procter & Gamble reports in the *Journal of Investigative Dermatology*, 31:273, 1958, on skin sensitization by mercaptans of low molecular weight and describes a method of testing with guinea pigs that will permit prediction of sensitizing potential on human skin. Results are abstracted in the "Skin Research" Department but the complete list of compounds tested, as possible hair waving chemicals, is of sufficient interest to warrant reproduction here. The original article itself should be consulted for valuable details, but information on waving power is not given.

Thioglycolate (mercaptoacetate) derivatives
- Mercaptoacetic acid (Thioglycolic acid)
- 3-Mercaptopropionic acid
- 2-Mercaptopropionic acid
- 2-Methoxyethyl mercaptoacetate

Thioglycolamide (mercaptoacetamide) derivatives
- Mercaptoacetamide (Thioglycolamide)
- N-(2-hydroxyethyl)-mercaptoacetamide
- N-methyl mercaptoacetamide
- N,N-dimethyl mercaptoacetamide
- N-(2,3-dihydroxypropyl)-mercaptoacetamide
- N-(2-methoxyethyl)-mercaptoacetamide
- N-(polyethyleneglycol) - mercaptoacetamide
- Mercaptoacethydrazide
- N-(mercaptoacetyl)-glycine
- N-(mercaptoacetyl)-urea
- 2-Mercaptopropionamide
- N-(mercaptoacetyl) - anthranilic acid
- N-(2-hydroxyethyl) - 3-mercaptopropionamide
- N-N-bis-(2-hydroxyethyl) - mercaptoacetamide
- N-(1,1-dimethylolethyl) - mercaptoacetamide
- 3-Mercaptopropionamide
- N-Mercaptoacetyl glycinamide
- N-trimethylolmethyl - mercaptoacetamide

N-Mercaptoethyl derivatives
- 2-Mercaptoethylamine
- N-(2-mercaptoethyl)-pyrrolidine
- 2-Mercaptoethyl - 2-methoxyethylamine
- N-(2-mercaptoethyl)-acetamide
- 2-Mercaptoethyl urea
- N-(2-mercaptoethyl) morpholine
- N-(2-mercaptoethyl)-2-methyl morpholinium iodide
- N-(2-mercaptoethyl) - N-methyl pyrrolidinium iodide
- N-(2-mercaptoethyl) pyrrolidone

Miscellaneous Types
- 1-Mercapto-2,3-propanediol (Thioglycerol)
- 4-Mercaptomethylbenzoic acid
- 2-Mercaptoethyl methyl sulfone
- 2-Mercaptoethane sulfonic acid
- 3-Mercaptopropane sulfonic acid
- 4-Mercaptobutane sulfonic acid
- 1-Dodecanethiol
- Mercaptosuccinic acid
- Mercaptosuccinimide
- Bis-(2-methoxyethyl) mercaptosuccinic acid
- $\alpha\mu$-Dimercaptoethyl polyethylene oxide
- Cysteine
- 3-Amino-4-mercaptobenzoic acid

Placenta Extract

With the biological value of placenta extract firmly established by medical and chemical tests according to G. Borchert (*Seifen-Oele-Fitte-Wachse* No. 7, 1958 p. 177), it becomes important to set up certain standards and to devise methods for qualitative evaluation of this substance. The placenta is a gland which produces and stores enzymes, vitamins, and ions which are essential to the metabolism of the fetus. If the extract is to retain these heat-sensitive active principles it must be made by processes which do not require exposure to heat. Extracts made by the Filatov method involving sterilization at 120°C. lose all enzymatic action. Fresh placentas which have been lyophilized or electrostatically treated will yield an extract high in phosphatase content, (both acid and alkali).

Experiments in the Warburg respirometer show that placenta extract of high phosphatase content stimulates cell respiration. If the phosphatases can be shown to survive in active form and in demonstrable amounts the other heat sensitive active components of the placenta extract, some of them still unknown, may also be assumed to have been preserved.

A simplified qualitative test for phosphatase is the following: Two ml of 1/100 m disodium phenyl phosphate solution is adjusted to pH 9 with weak sodium hydroxide solution. At a temperature of 37°C., 0.2 to 0.5 ml. of the placenta extract is added and the mixture is left for about 15 minutes at 37°C. The 1.8 ml. of phenol reagent according to Folin-Ciocalteau (Bayer, Leverkusen) is added, followed by thorough mixing. After filtering the mixture, take two ml. of it, adjust again with sodium hydroxide solution to a pH of 9 and keep on a water bath for five minutes at 37°C. If phosphatases are present an intense blue color will develop during this period. Intensity of the color is dependent upon the phenol content, and this in turn depends on the phenol liberating effect of phosphatase.

Placenta extract for cosmetic applications should be derived not from human but from animal placenta. The animal should be pregnant not longer than three months before slaughter. At that stage of pregnancy the placenta yields an ex-

tract of high enzyme content but free of follicular hormone, which might possibly constitute a risk to the female cycle. This last consideration is of particular importance in the cosmetic field.

In summary, the following points should be observed in evaluation of placenta for cosmetic preparations: the extract must be made by processes avoiding changes by thermal or chemical action, so as to preserve a certain, measurable amount of phosphatases; it should be extracted from animal placenta in the third or fourth month of pregnancy, and it must show in vivo a demonstrable influence on cell respiration (Warburg apparatus).

Nucleic Acids in Cosmetics

A nourishing, toning, restoring, and emollient effect upon the human skin is claimed for nucleic acids in an article by Paolo Rovesti, in *Parfumerie, Cosmetique, Savons*, 1958, pp. 398-402. Having briefly dealt with nucleic acids in general the author turns to the preparation of ribonucleic acid (RNA) and of desoxyribonucleic acid (DNA). He then reports experimental evidence showing desirable cutaneous effects of a bentonite mask incorporating two per cent RNA or DNA. The acids are first dissolved in a 10 per cent solution of sodium acetate and a little sodium phosphate.

The face of the subject is carefully cleaned with a cleansing emulsion and then washed with water. One half of the face is covered with a mask containing either RNA or DNA, the other half is used as a control and covered with a plain bentonite mask. Wet gauze is applied over the mask to prevent excessive evaporation. After two applications the above mentioned beneficial effects were observed, along with elimination of small wrinkles.

The action of desoxyribonucleic acid was found to be faster and more effective than that exhibited by ribonucleic acid. According to the author no cases of allergic reaction to these masks have been observed. A wide variety of skin types including acne patients, and especially tired and aging skins are said to have benefited from this treatment.

Nucleic acids play an ever growing part in modern medicine. They are now shown to be effective skin nutrients and restorers.

Comment: Since standards of performance imposed by our own FDA and FIC remain very different from those assumed by Continental investigators, this preliminary statement will require verification in this country. If a product results, claims had better be based upon double talk rather than specific assertions, until adequate experimental results become available.

Stabilizing Thimerosal Solution

Thimerosal solution, on standing for a prolonged period of time, very often undergoes decomposition with formation of a precipitate. Thimerosal is incompatible with heavy metal ions. Investigation by T. Fujita and A. J. Vazakas (*Drug Standards*, 26: 165, 1958) has shown one of the factors responsible for the decomposition to be the reaction of the alkaline thimerosal solution with its glass container, with the probable result that traces of heavy metal ions are brought into solution. To overcome the incompatibility, various sequestering agents were incorporated into the formula of thimerosal solution in an effort to convert these metal ions into an unreactive, though soluble form. A solution of good stability resulted when the sequestering agents used were a mixture of sodium potassium tartrate and citric acid.

PVP Tablet Binder

G. P. Lehrman and D. M. Skauen (*Drug Standards* 26: 170, 1958) made a study to evaluate the usefulness of polyvinylpyrrolidone as a binding agent in tablet formulations compared with common binders available to the tablet technologist. Five representative medicinals were studied: sodium bicarbonate, aspirin, ascorbic acid, magnesium carbonate, and sodium salicylate. The binders used were acacia mucilage, starch paste, and syrup. Acceptable formulations of each type were prepared using standard wet-granulation methods and were tableted on a single-punch tablet press. Granulations were examined for fines content, moisture levels, hardness, and compressibility. Finished tablets were studied with respect to disintegration time, hardness, friability, and appearance. Aging studies for all tablets were conducted at 40° C. and at room temperature.

PVP was found to be an effective and stable binding agent for the formulations studied and was comparable or better than control binders; and to exert a stabilizing effect in aspirin formulations.

Polish Remover

A concentrate for the removal of nail polish is claimed under German patent No. 1,021,134 (Oscar Wurmboeck and Egon Wurmboeck, Munich. The product consists of a mixture of ethylglycol acetate solvent 89 parts; fatty alcohol ethylene oxide condensate (dispersing agent) five parts; polyoxyethylene sorbitan monooleate (emulsified) five parts; and citric or acetic acid or ammonium chloride (for acidity) one part.

This mixture is used at a concentration of 10 to 15 ml./ 50 ml. water at 40°C. A short immersion in this solution removes polish from nails.

Polymers in Lipsticks

Incorporation of polysiloxanes in lipsticks and other skin coloring cosmetics is suggested in German patent No. 968,535 (*Wolfgang Spindler, Stuttgart*). The following advantages are claimed for polysiloxanes in this type of formulation: viscosity practically unchanging within the temperature range used in cosmetic applications; a powerful impregnating and water repellent effect which protects a colored film against smearing by liquids and in part against rubbing; polysiloxanes protect the skin against dehydration, brittleness, cracking, and are nonirritating; as a protective film they add gloss and brilliance to colors.

One formula calls for 10 grams of an aqueous dispersion of an oily diethylpolysiloxane into which 0.5 gram eosin is worked, until the dye is completely dissolved. Applied to the lips, this emulsion forms a smear proof, brilliantly red film, once the water is evaporated.

A second example incorporates 10 grams wax alcohol, one gram water, three grams of a di-arylpolysiloxane in paste form, 0.8 grams eosin, two grams of a commercial pigment, and 0.1 gram of a wetting agent such as ethylene glycol monoethyl ether. These ingredients are heated in a vessel until all are in the liquid state. The melt is thoroughly mixed and poured into molds. After cooling, the mass resembles conventional lipstick in consistency.

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Cholesterol, *by David Kritchevsky, Ph.D., 291 pages, John Wiley & Sons, Inc., New York, (1958), cloth,* **$9.75.**

This book sums up current knowledge of cholesterol and indicates research approaches that may lead to fuller understanding of the functions and activities of this compound. Chapters devoted to steroid chemistry present an excellent review of the literature. This very well-written work also covers the metabolism of cholesterol, its functions in disease states, the significance of blood cholesterol and the implications of the steroid in cancer and atherosclerosis.

Handbook Of Chemistry And Physics, *Fortieth Ed., Charles D. Hodgman, M.S., Professor Emeritus, Case Institute of Technology, 3453 pp., Chemical Rubber Publishing Co., Cleveland, (1958), Fabricord binding,* **$12.**

This ready reference book of chemical and physical data needs little introduction to the science field. Suffice it to say that the latest edition contains more than 100 pages of new and revised scientific facts. The handbook contains complete basic information on physics, chemistry and mathematics and is world famous for its exact interpretation of factual data. It has continued to progress with the scope of the sciences ever since the first volume was published 45 years ago. Following is a list of important new information: Electron Physics Table; Physical Constants of the Rare Earth Compounds; Superconducting Transition Temperatures; Magnetic Threshold Fields at Absolute Zero; Electronic Constants and Debye Temperatures For Superconducting Elements; Thermodynamic Properties of the Elements; Thermodynamic Properties of the Oxides; Physical Constants of Inorganic Hydrides; Chelating Agents; Ion Exchange Resins; Thermal Conductivity of Oven-Dry Wood Across the Grain; Thermal Conductivity of Wood Across the Grain at Various Moisture Content Values; Langevin Functions.

Food Industries Manual (A Technical And Commercial Compendium On The Manufacture, Preserving, Packing And Storage Of All Food Products), *A compilation by the Staff of "Food Manufacture," 979 pp., Chemical Publishing Co., Inc., New York, (1958), cloth,* **$16.**

This book consists of 14 separate sections each covering with individual articles running from A to Z all aspects of the following fields: flour and flour milling, breadmaking and confectionery; sugar confectionery, chocolate, jams, jellies, canning and preserving; meat products; pickles and sauces; the dairy industry; food dehydration; edible fats and fatty foods; fruit juice prdoucts; food storage and refrigeration; food handling equipment; the boiler house. There are also tables on the composition and vitamin content of foods.

Advances In Enzymology And Related Subjects Of Biochemistry, *Edited by F. F. Nord, Fordham University, 488 pp., Interscience Publishers, Inc., New York, Volume 20, (1958), cloth,* **$12.50.**

The contents of this latest volume include: Possible Relation between Optical Activity and Aging, by Werner Kuhn; Kinetics and Equilibria in the Liver Alcohol Dehydrogenase System, by Hugo Theorell; The Roles of Imidazole in Biological Systems, by E. A. Barnard and W. D. Stein; Uridinediphospho Galactose: Metabolism, Enzymology, and Biology, by Herman M. Kalckar; Neuraminidase: Its Substrate and Mode of Action, by Alfred Gottschalk; The Constitution of the Respiratory Chain in Animal Tissues, by E. C. Slater; Enzymology of the Plastids, by N. M. Sissakian; Enzymic Transformations of Steroids by Microorganisms, by E. Vischer and A. Wettstein; The Mechanism of Hydrolysis by Cholinesterase and Related Enzymes, by D. R. Davis and A. L. Green; The Biosynthesis of Dicarboxylic Amino Acids and Enzymic Transformations of Amides in Plants, by W. L. Kretovich; Pectic Substances and Pectic Enzymes by H. Deuel and E. Stutz; and Antibiotics and Plant Diseases, by Fred W. Tanner, Jr., and Samuel C. Beesch.

Symposium on Protein Structure, *Edited by Albert Neuberger, Professor of Chemical Pathology, St. Mary's Hospital Medical School, London, 351 pp., John Wiley & Sons, Inc., New York, cloth,* **$7.75.**

This book represents a record of an international symposium (Paris, 1957), in which most of the distinguished protein chemists of the world took part. Papers were given by Professor Tiselius of Uppsala; Professor Linderstrom-Lang of the Carlsberg Laboratory, Copenhagen; Professor Fromageot of the Sorbonne, Paris; Drs. Stein and Moore of the Rockefeller Institute; Professor Neurath of Seattle; Dr. Perutz of the Cavendish Laboratory, Cambridge; Dr. Porter of the National Institute of Medical Research, London; Professor Pauling of the California Institute of Technology and many other distinguished scientists.

This is No. 97, **Instrument and Control Engineering,** and No. 98, **The Scientific Instrument Industry,** in a series of monographs in the vocational and professional Monograph Series. Each pamphlet includes material on the history of the occupation or industry; qualifications for employment; training required; methods of entry; opportunities for advancement; earnings; general trends in the occupation or industry; and sources of further information. Copies may be obtained from Bellman Pubishing Co., Cambridge 38, Mass. at $1. per copy.

The New Chemotherapy In Mental Illness (The History, Pharmacology And Clinical Experiences With Rauwolfia, Phenothiazine, Azacyclonol, Mephenesin, Hydroxyzine And Benactyzine Preparations), *Edited by Hirsch L. Gordon, M.D., Department of Psychiatry, New York Medical College, 762 pp., Philosophical Library, New York, (1958), cloth,* **$12.**

The present decade of this century will probably be remembered in medical history for the introduction of the "tranquilizing" or ataractic drugs in the treatment of mental illness. The present work, by one hundred and sixty-seven medical experts, reviews their multiple experiences with these drugs in treating such psychiatric disorders as schizophrenia, manic-depression, neuroses mental retardation and senility

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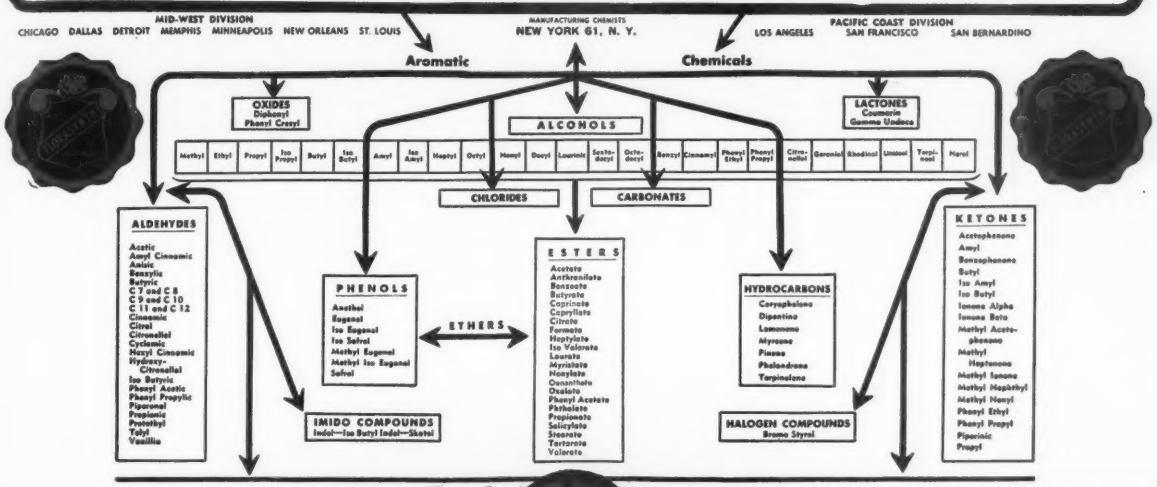

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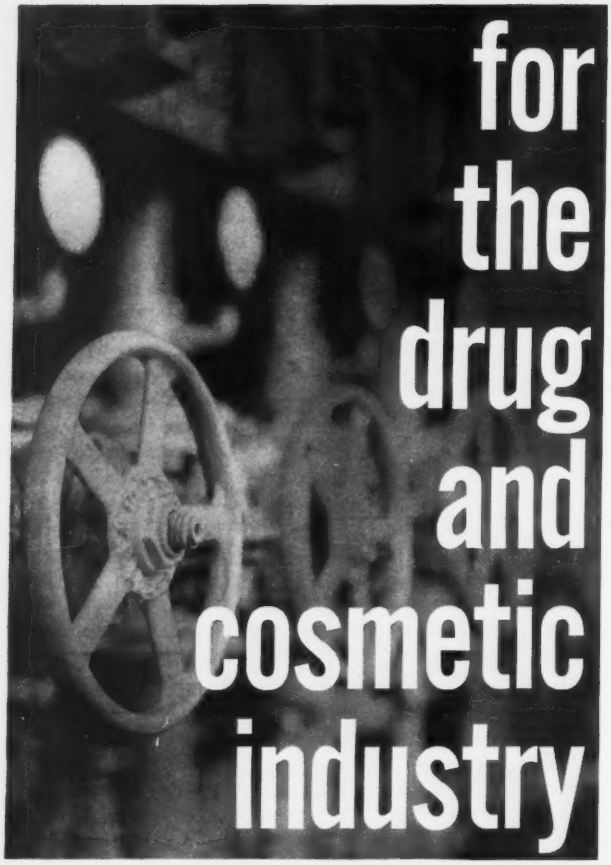

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Skin Research

Chemists and Dermatologists

The relationship between chemists and dermatologists in cosmetics remains an uneasy one, aggravated more often than eased when there is direct contact between the two. The dermatologists, as practising physicians, as research investigators or as teachers are prone to assume the customary physician's stance of infallibility. This is naturally accompanied by an unconcealed attitude of superiority, impolitic even if it were warranted. Dermatologic language seems to call for the patronizing use, in talks if not in writing, of words like "cosmetologist" and "cosmetician" instead of the shorter and much more accurate "chemist."

There must be a greater realization among dermatologists that without the intervention of topical dosage forms provided by pharmacists and pharmaceutical and cosmetic chemists and without the active ingredients provided by chemists and other non-medical scientists, the role of the dermatologist might well be that of a placebo.

The chemists in the cosmetic industry have welcomed the interest of dermatologists and have often gone out of their way to invite this interest. Two-sided cooperation is called for, however, not intolerable condescension from one direction, in order that both sides may profit, financially and otherwise.

Indelible Lipstick Sensitivity

Some striking symptoms were seen in a 45-year-old patient following the use of a "more" indelible lipstick according to H. M. Salzer (*Eye, Ear, Nose and Throat Monthly* 37: 253, 1958). First, they resembled acute coryza, and for the next two months those of subacute pharyngitis and sinusitis.

One day her tongue felt "as if it had been burned." This symptom cleared in a few days. Two weeks later she reported a "severe head cold"; it was still present one week later, after an anti-histamine preparation, throat lozenges, nasal spray and oral antibiotic had been prescribed.

More than a month later the patient reported that she still had her "cold," plus—ever since she first had the sensation of a burned tongue—a sore throat and red spots on her tongue.

Are you using a lipstick of the "more" indelible type?, she was asked. Yes, she did. Instructed to discontinue its use immediately, she was free of all symptoms in four days.

A patch test confirmed her sensitivity to this type of lipstick. "Ordinary" lipstick was applied to her right, the "more" indelible type, containing more than the usual amount of eosin dye, to her left forearm. After 48 hours a positive reaction showed on the left forearm and only a slight reaction appeared on the woman's right forearm.

Since most women prefer a more lasting lipstick, the so-called bromo acids, giving indelibility to the applied film, play an important role in the formulation of lipsticks. Their amount in lipsticks may vary from one to five per cent; ordinarily, two or three per cent seems to be adequate.

Patients have reacted to lipsticks containing more than the usual amount of dyes with dermatitis, lacrimation, hives and nasal congestion. Zakon *et al.* (*Arch. Dermatol. and Syph.* 56: 499, 1947) report 32 cases of cheilitis, one of the most common dermatoses seen in clinical practice, caused by such lipsticks. The patients' symptoms included swelling and edema of both lips, also scaling, fissuring and superficial erosions with occasional small vesicles, and burning and tingling sensations. The factor of sensitization to light is considered as negligible in this series; only four of the 32 patients experienced their first symptoms during the summer. After the bromfluorescein dyes were eliminated and less indelible or non-indelible lipsticks substituted, the symptoms disappeared in an average period of two weeks.

—*What's New* 1958, No. 208

Acne Treatment

Several mechanisms of action have been suggested to account for the clinical value of progestational agents in the management of severe and persistent acne in women. Defects in these proposals may result according to K. C. Baker (*J. Invest. Dermotol.* 31:347, 1958) from incomplete knowledge of the physiologic action of progestational hormones in humans.

Since the secretion of the corpus luteum hormone is initiated at the time of ovulation and ceases at the time the corpus luteum degenerates, acne could be a manifestation of corpus luteum dysfunction and a resultant shortage of the hormone or of its derivative progestins. The notable benefits of certain progestational agents, particularly 17-alpha-hydroxyprogesterone caproate, in women reporting premenstrual exacerbations of acne lends credence to this proposal.

The efficacy of administered progestational agents in acne may not result from simple replacement therapy as previously suggested, but rather from a reduction of the susceptibility or sensitivity of the pilosebaceous apparatus and of its capacity to respond to endogenous proges-

tational hormones.

In terms of practical therapy, the carefully supervised administration of progestational hormones appears to induce benefit in persistent cases of acne in women. However, patients frequently fail to respond to oral progesterone therapy because of the brief duration of action of the free hormone, or the inadequate dosage that results from low potency and poor absorption. The availability of 17-alpha-hydroxyprogesterone caproate with a prolonged progestational activity makes possible a physician-controlled regimen which maintains a high progesterone level.

The uniformly favorable response of 76 women with persistent acne to 17-alpha-hydroxyprogesterone caproate (Delalutin), suggests that this compound be given an extensive trial either alone or in conjunction with other systemic and local measures as a therapeutic agent in this disorder. A single injection of the steroid ester once a month repeated two to six times markedly limited the occurrence of lesions and considerably improved the appearance of the skin.

Sensitization By Mercaptans

The principal objectives of this communication by J. G. Voss (*J. Invest. Dermatol.* 31:273, 1958) are to demonstrate (a) the activity of some simple mercaptans as a class of water-soluble allergens, (b) the utility of the guinea pig in predicting the allergenicity of new compounds for man, and (c) an improved patch test method which more clearly distinguishes between primary irritation and sensitization in human subjects.

Aqueous solutions of test compounds were adjusted to pH 9.0-9.3 with ammonia, and stored under nitrogen in the refrigerator in order to retard oxidation. Each time the flask was opened for removal of sample, the air space was flushed out with nitrogen before replacement of the rubber stopper.

The data show the results of human and animal tests on forty-four mercaptans. Only two, thioglycolic (mercaptoacetic) acid and probably 3-mercaptopropionic acid, appeared to be devoid of significant allergenic activity. Of the compounds tested, the derivatives of thioglycolamide (Mercaptoacetamide) were generally the most strongly allergenic. However, detailed comparisons of allergenicity, based on these data, are considered fruitless; in most cases, the numbers of animal or human subjects are not sufficiently large to permit valid comparisons. Forty of the forty-four compounds tested induced sensitization in man and/or guinea pig. Of these forty, eight induced sensitization in both species, while eleven sensitized man but failed to sensitize the guinea pig. The guinea pig test, therefore, had useful predictive value in this work. It is noteworthy that the guinea pig gave some false negative results; it failed to yield any false postitives, although eighteen compounds which sensitized guinea pigs were not tested in man. Thus, man again appears to be outstandingly susceptible to delayed contact-type sensitization by simple compounds.

Further studies of sensitization of guinea pigs showed that five intradermal injections of mercaptan in Freund's adjuvant followed by five injections of mercaptan alone, greatly increased the sensitizing potential of the test compound. By this procedure, it was even possible to sensitize guinea pigs to thioglycolate. For screening purposes this method was unsatisfactory, however, because of its excessive efficiency; much previous experience and the successful marketing for years of hair-waving lotions based on thioglycolate have shown this compound to be essentially non-allergenic in man. Obviously, a sufficiently weak allergen may be used by man without a significant occurrence of reactions due to sensitization.

The data reported show that some simple mercaptans belong to a class of water-soluble allergens, and are capable of inducing a typical, delayed, contact-type sensitization in man and guinea pig. It is assumed that these compounds induce sensitization by splitting disulfide bonds of skin proteins and forming derived proteins which serve as the actual allergens. A reaction such as PSSP + RSH → PSSR + PSH, in which P represents protein and RSH the mercaptan, may be visualized as the mechanism whereby a haptenic substituent is introduced into the protein molecule. Separate experiments using S^{35}-tagged mercaptans, have shown this reaction to occur with hair keratin.

Allergenic activity was found in some degree with almost all the forty-four mercaptans tested. Even thioglycolate, which has been widely used in cosmetic products by millions of women with perfect safety, showed a minimal allergenic potential when tested with Freund's adjuvant in guinea pigs. Since the sulfhydryl group is the common denominator of these compounds, it must be assumed that it is the feature responsible for sensitization, probably by a mechanism such as that cited above. Allergenic activity of the sulfhydryl group, of course, may be profoundly modified by the remainder of the molecule.

Success in sensitizing animals depended chiefly on use of (a) the highest practical concentration of mercaptan to induce sensitization, and (b) the highest challenging concentration. In addition, the use of topical applications of 2-5 per cent solutions of mercaptans in a mixture of water, methyl cellosolve, and Tween 80 was frequently helpful in defining the occurrence of hypersensitivity; reactions to topical challenge appeared to be significantly more sensitive than were reactions to intradermal injection.

Sensitization of human subjects was readily accomplished with all but two of these mercaptans, using the "repeated insult" patch test.

Evidence of cross-sensitization to thioglycolate by other mercaptans was observed in three instances. This experience emphasizes that not more than one test compound of this type should be applied to the same subject. Cross-sensitization of female subjects to thioglycolamide caused reactivity to hair-waving lotions based on thioglycolate.

No instance was found in which a compound was allergenic in the guinea pig and not in man. Therefore compounds showing allergenic activity in the guinea pig were not tested further in man.

The principal failing of this test was its inability to detect all of the mercaptans which were allergenic in man. Consequently, some human subjects were sensitized to compounds which need not have been evaluated in patch tests, had the guinea pig been as readily sensitized as is man. Nevertheless, the need for patch tests was obviated by use of the guinea pig method in a number of instances.

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Trade Literature

Aromatic Chemicals, Essential Oils

Dodge & Olcott, Inc., 180 Varick Street, New York 14, has printed the newest of its semi-annual essential oils and chemicals price list and catalog. The 38-page booklet contains price listings, descriptions and market information including such products as aldehydes, balsams, certified colors and oleoresins.

Aerobic Waste Treatment

The Dow Chemicals Company, Midland, Michigan. has published a 23-page illustrated booklet, Dowpac, Applications in Waste Treatment. The publication, which first discusses biological oxidation of liquid wastes, then goes on to describe Dowpac, its properties, its assembly, how it functions in oxidation towers and finally performance data, a plastic packing for use in aerobic biological oxidation of liquid wastes.

Flavors

Fritzsche Brothers, Inc., 76 Ninth Avenue, New York 11, have made available a new 28-page illustrated flavor catalog describing more than 30 flavor groups embracing a total of over 700 varieties of flavors. Also included are easy-to-use flavor group application charts. Distribution is limited to those who buy in wholesale quantities.

Essential Oil Catalog

Neumann-Buslee and Wolfe, Inc., 5800 Northwest Highway, Chicago 31, has issued a new catalog and price list of essential oils and related products. The company plans to issue the catalog four times a year, each issue carrying a different color scheme, to enable the trade to distinguish the most recent issue.

Aerosol Equipment

Builders Products, 108-110 Wooster Street, New York 10, division of Builders Sheet Metal Works, Inc., has made available an illustrated catalog of laboratory and small scale production equipment for aerosol filling.

Chemicals

Antara Chemicals, 435 Hudson Street, New York 14, a sales division of General Aniline & Film Corporation, has published an expanded and completely revised chemicals catalog. The 64-page catalog is divided into separate sections, which cover such items as surfactants, organic intermediates, acetylene derivatives and ultra-violet light absorbers.

Profitable Bottle Necks

E. I. du Pont de Nemours & Company, Wilmington 98, Delaware, has produced a question-and-answer form of booklet describing Cel-O-Seal cellulose bands, their cost, application and merchandising opportunities, of special interest to those who package in glass.

Point of Sale Merchandising

Hinde & Dauch, Sandusky, Ohio, has published a 32-page pamphlet, How To Select Display Stands, which anwsers questions on how to give products more impact at the point of sale. Completely revised, the colorful booklet appears as one of the Little Packaging Library series published by the company.

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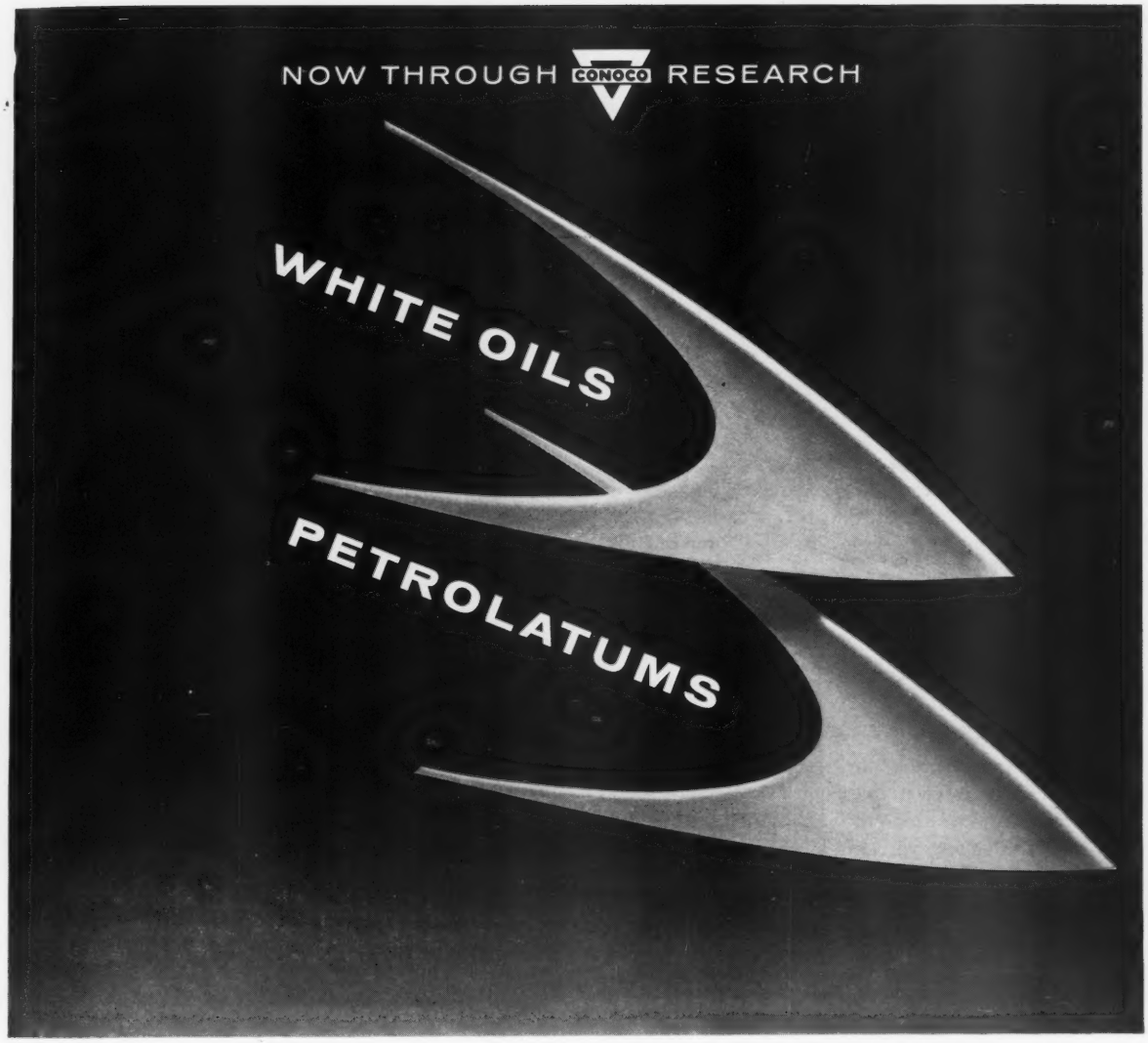

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(*Continued from page 723*)

or prolonged antibiotic therapy include *Proteus*, *Pseudomonas* and other gram-negative organisms, resistant staphylococci, *Candida*, and, in children, *Haemophilus influenzae*.[21] *Pseudomonas* was the principal agent in pulmonary infections in one pediatric service following the introduction of tetracycline,[6] though reports of staphylococcal pneumonia are more common in the literature. Staphylococcal pneumonia has its highest incidence in early infancy, when natural resistance of the host is low, but it is by no means limited to children. The infection rate for staphylococcal pneumonia in a surgical ward during an epidemic-free period was 2 per cent.[23] An internist comments that the staphylococcus appears to have displaced the pneumococcus as the invader in terminal illness.[24]

The persistence with which drug-resistant mutants of *Myobacterium tuberculosis* emerge during drug therapy is well known. Streptococcal resistance problems are relatively infrequent, though Types 17 and 19 Group A *Streptococcus pyogenes* are resistant to sulfadiazine, while increasing resistance of *Streptococcus viridans* to erythromycin has been noted in bacterial endocarditis.[1]

Drug-resistant organisms appearing in aged patients as a secondary over-growth frequently invade the lower respiratory tract and the urinary system.[25] Urinary infections are second only to those of the respiratory tract in frequency.[26] No age is exempt from these troublesome infections in which, increasingly, the more resistant gram-negative enteric organisms are identified. Carroll reports that with "the indiscriminate use of antibiotics" the proportion of *Proteus* infections has climed from about 5 to 12 per cent, and of *Pseudomonas* from 12 to 20 per cent.[27]

Sulfonamide-resistant strains of *Neisseria gonorrhoeae* are responsive to penicillin or other antibiotics, and it is interesting that old cultures, antedating the introduction of sulfanilamide, were found to be as resistant as those of the present day.[1]

During therapy with broad-spectrum antibiotics, *Proteus*, *Pseudomonas*, *Aerobacter*, and *Staphylococcus aureus* organisms, along with yeasts and fungi, may emerge as the dominant intestinal flora.[21] Dysentery, enteritis, and enterocolitis are among the complications that ensue from staphylococcal superinfection.[20, 25]

Skin lesions often precede other complications in hospital-acquired infections. Impetigo and pyoderma in nurseries for the new born are followed by an outbreak of breast abscesses among the mothers.[28] Furunculosis is a frequent postoperative complication.[16] As high as 41 per cent of open and drained surgical wounds have been found to be colonized by staphylococci by cross infection on the wards. These organisms, with *Pseudomonas* and *Proteus*, are the chief invaders of burn wounds, while septicemia from such infections is the leading cause of death in burn cases.[29]

The death rate from staphylococcal bacteremia was in the range of 75 to 80 per cent before antibiotics, then fell to 26 per cent, and is now back to 60 per cent.[6] Gram-negative bacteremias have "markedly increased."[6]

Breakdown of Aseptic Conscience

The *Journal of the American Medical Association* has editorially deplored the fact that "although patients go to the hospital to be cured, many acquire respiratory, intestinal, urinary, or wound infections there."[31] Hospitals are liable to be "bacteriologically dirty places," according to Sir Howard Florey.[32]

The epidemiologist is interested in the pathways over which infection is transmitted from reservoirs within the hospital to the susceptible host, or patient. These include direct contact with other patients or with personnel, airborne transmission, and indirect contact by means of contaminated objects in the hospital environment.[35]

While half or more of the personnel of a hospital may be nasal carriers of staphylococci, only 4 to 10 per cent usually carry the more virulent strains. Patients and personnel with pustular lesions are believed to be a more dangerous source of infections than most nasal carriers other than those with a cold or hay-fever.[35]

The nursery for the new born has been implicated as a major reservoir of staphylococcal infection within the hospital. Not only is the infant's skin rapidly colonized, but the organism is able to invade through a baby's intact skin.[2] Williams believes that in Britain from 10 to 15 per cent of newborn babies develop septic lesions,[23] while frequent nursery epidemics in the United States leave no room for complacency.

Howe sees evidence that the majority of serious clean wound infections are seeded in the operating room.[29] Infections of clean wounds have been attributed to the cutaneous infections of members of the operating room team, while the salivary spray attendant upon "the unbelievable amount of chatter which occurs during the course of an operation" is deplored.[39] An operating room door was opened and closed 112 times in two hours, according to one tally.[6]

Urologic instrumentation is a common cause of infection even when the utmost precaution is taken. The use of aseptic techniques in the administration of intravenous infusions and of injections and of masks and gloves in changing septic dressings has been urged.[10]

The pathways from an infected patient lead quickly to the bedding, to other articles in the room, and to the bathroom; air currents carry the organisms to other parts of the hospital.[35] The mattress has been compared to a bellows, while a contaminated mop

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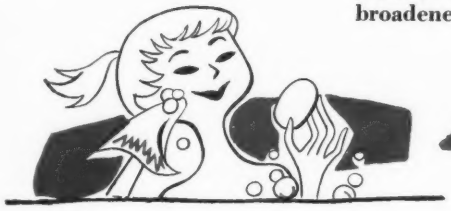

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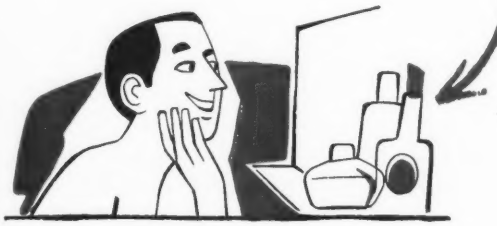

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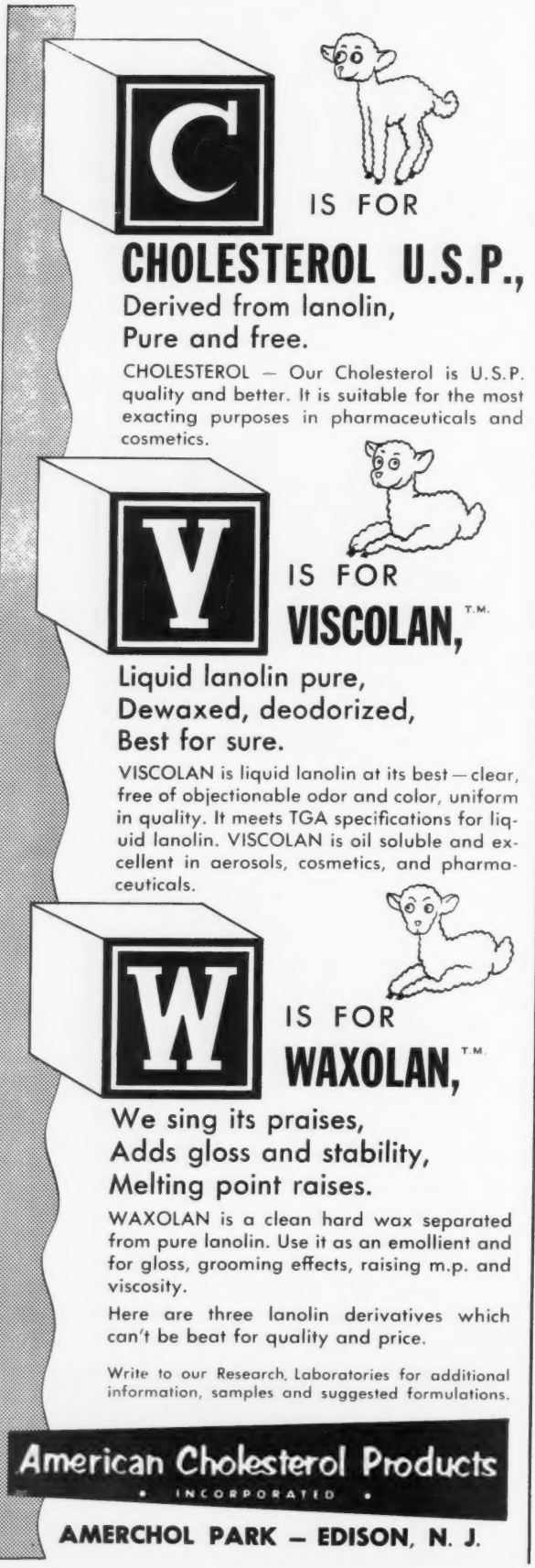
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"can seed organisms like a road-sander."[42] Air leaking from laundry chutes can carry penicillin-resistant staphylococci into hospital corridors.[43] Walter calls the dirty laundry pile in the sorting room the compost heap of the hospital, providing warmth and moisture for the multiplication of bacteria.[35]

The interruption of the pathways between reservoir and host calls basically for "a thorough old-fashioned cleanliness in all disciplines."[29] It has been demonstrated that systematic adherence to a rigorous regime can bring down the rate of infection.[39, 44]

Recommendations for the prevention and control of resistant infections have been formulated by the Conference on Staphylococcal Infections in the Hospital and Community, sponsored by the American Medical Association;[5] the Joint Commission on Accreditation of Hospitals;[45] the Council of Professional Practice's Committee on Infections Within Hospitals tional Conference on Hospital-Acquired Staphylococcal Disease, co-sponsored by the Public Health Service and the National Research Council.[47]

Recommended procedures include controls in such areas as food handling, laundry, housekeeping, traffic, ventilation, sterilization, the nursery routine, scrub, gown, mask and dressing cart technics, and administration of antibiotics; isolation of infectious patients; identification and control of carriers among personnel; education in anti-infectious procedures by precept and example; and a system for recording infections and tracing their source, together with periodic sampling of discharged patients. Research in the underlying sciences[5] and in the design of hospital buildings and equipment[47] is urged.

Host-Parasite Relationships

To give exclusive attention to environmental factors, however, is to overlook the fact that some patients are more susceptible than others to infection.

Therapy with bacteriostatic antibiotics relies to a great extent on host resistance,[51] but the host's defenses are one of the variables that render uncertain the *in vivo* performance of an antibiotic.[9] Factors that appear to increase susceptibility to infection include treatment with corticoids, physical debility, chronic disease, diabetes, and bed sores and other breaks in the skin.[40, 46, 52] Fatal staphylococcic infections in medical patients are reported to be less frequent than in surgical and pediatric patients.[53]

Gamma globulin has been combined with antibiotics to improve host resistance, and hope is held out for further progress through the use of specific immune sera and antigenic stimulation.[51]

Drug-Parasite Relationships

Rounding out the epidemiologic picture are the drug-parasite relationships. Can they be altered for the better? The exposure of bacteria to antibiotic agents can be lessened by avoiding routine "prophyl-

(Continued on page 804)

Reader's Questions . . .

Non-Settling Suspensions: *How can we prevent suspensions from settling to a hard mass that is hard to redisperse by shaking? We have had this problem in a number of preparations we have made and would like to improve them.*
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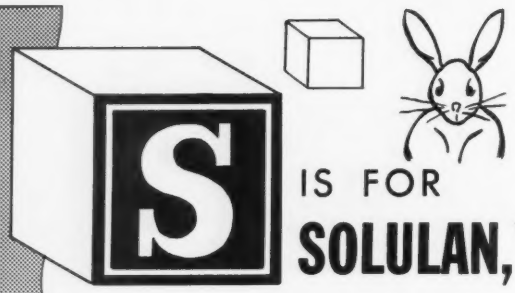

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(*Continued from page 802*)

axis" and the random prescription of antibiotics in the absence of probable bacterial infection.[55] Strains of chloramphenicol-resistant staphylococci fell off drastically after this drug was withdrawn from use and increased once more upon its restoration.[56] Rotating the antibiotics in use in a given hospital[36, 40] and withholding effective new drugs for serious infections[55] have been proposed in order to reduce the number of resistant organisms in the bacterial population.

Easier and quicker laboratory methods for making specific bacteriologic diagnosis would lessen the temptation to overuse antibiotics.

Despite the muted enthusiasm of current discussion regarding further progress in antibiotic therapy, the search for new and more potent agents will doubtless continue and some will be developed to which resistance, for the time at least, is minimal.

However, there is a limit to the number of microorganisms which may be prospective producers of useful "mycins," as Seneca and Lattimer have pointed out, and at some future date the supply of such organisms will be exhausted. For this reason, they believe, "the future of antimicrobial therapy may well rest with antibacterial chemicals more than with antibiotics," since "chemists have endless opportunities to synthesize new drugs."

These investigators subjected resistant strains of *Staphylococcus aureus* to increasing concentrations of penicillin. Cross-resistance to most other antibiotic drugs appeared but "no resistance was manifested against chemical antibacterials, such as nitrofurantoin and sulfadiazine." It is suggested that while the mycins are natural products to which a few organisms become resistant to preserve their own species, the antibacterials are probably not found in nature and apparently do not play a role in natural processes.[18]

Ninety-five per cent of 300 strains of coagulase-positive staphylococci were sensitive to nitrofurantoin,[58] which "may be unique as a wide-spectrum anti-bacterial agent that is bactericidal, relatively non-toxic, and does not invoke resistant mutants."[59] Now that an intravenous form is available for investigation, its unique properties lend interest to the first results of its use in severe systemic infections due to antibiotic-resistant staphylococci and gram-negative organisms.

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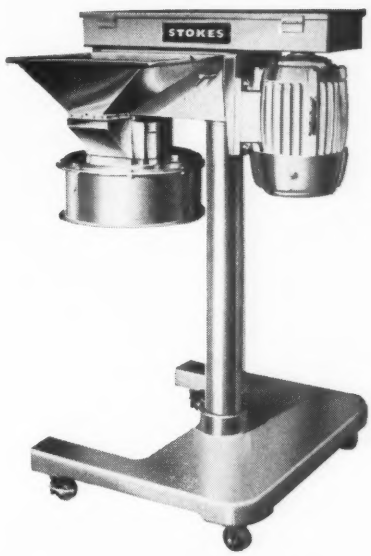

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HAIR CURLING

(*Continued from page 725*)

TABLE 1

EFFECT OF pH ON THE SWELLING OF HAIR IN 6% AMMONIUM THIOGLYCOLATE

pH	% Swelling*
8.0	40
8.8	80
9.2	160
9.6	280

*This swelling was measured by the method described by Powers & Barnett, J. Soc. Cos. Chem. IV, 92-100, Aug., 1953. The time was for 15 minutes at 25°/C.

TABLE 2

EFFECT OF CONCENTRATION OF AMMONIUM THIOGLYCOLATE ON THE SWELLING OF HAIR AT pH 9.4 FOR 15 MINUTES

% Thioglycolate	% Swelling
1	33
2	45
3	85
4	110
5	150
6	200

Chemical Swelling of Hair

Table 3 lists the swelling action of several chemicals on hair. This swelling study was based on the procedure outlined in the article of Powers & Barnett in the August, 1953, issue of the *Journal of the Society of Cosmetic Chemists*. It is also based in part on some studies made by G. Barnett, while working with Dr. Emory Valko on his Master's thesis at the Polytechnic Institute of Brooklyn, New York.

TABLE 3

EFFECT OF CHEMICALS ON THE DEGREE OF SWELLING OF HAIR AT 25°/C.

Compound	Concentration in water	% Swelling	Time of swelling
Water	100	31.5	1 day
Ammonium thioglycolate	6	230	1 hour
Sodium thioglycolate	6	155	1 hour
Ammonium bisulfite	10	47	1 day
Sodium hydrosulfite	10	44	1 day
Ammonium lauryl sulfate	30	36	1 day
Triethanol ammonium alkyl benzene sulfonate	30	43	1 day
Ethyl alcohol	100	17	1 day
Ethyl alcohol	25	25	1 day
Isopropyl alcohol	100	17	1 day
Ethylene glycol	100	18	1 day
Ethylene glycol	100	47	120 days
Ethylene glycol	25	31	1 day
Glycerine	100	11	1 day
Glycerine	25	29	1 day
Urea	25	37	1 day
Chloral hydrate	50	75	1 day
Acetic acid	100	58	1 day
Acetic acid	50	47	1 day
Chloracetic acid	50	63	1 day
Ethanol amine	50	48	1 day
Triethanol amine	50	46	1 day
Diethyl amine	50	80	1 day
Diethyl amine	100	10	1 day
Lithium bromide	30	37	1 day
Lithium bromide	60	50	1 day
Lithium bromide	75	77	1 day
Lithium bromide	75	90	30 days

It is interesting to note that many chemicals such as alcohol, glycerine or ethylene glycol cause less swelling than water and, when added to water, they decrease its normal swelling of the hair. It should also be noted that some of these compounds will swell hair very slowly indeed. For example, lithium bromide takes at least a month to exert its full swelling action, and ethylene glycol takes at least four months to equilibrium.

It is clear that a dilute solution of ammonium thioglycolate is in a class by itself as a swelling agent for hair. When it is realized that rapid hair swelling is one necessary factor in satisfactory hair waving, it becomes evident why most chemicals have little promise in this field.

Conclusion

The use of chemicals for the curling of hair has been widely studied for many years. It seems probable that good curling action with little or no hair damage requires a chemical that has excellent and rapid swelling action with quick penetration. The thioglycolate salts appear to react with the keratin of the hair to exert a rapid swelling action without keratin damage. The chemical action of mild oxidizing agents rapidly reverses this action and deswells and hardens the hair in the curled position. In the search for new chemicals for hair curling the thioglycolates have been hard to beat.

GERMAN COSMETIC CHEMISTS

(*Continued from page 727*)

The whole range of effects produced by the essential oils must be taken into consideration when they are used in the preparation of cosmetics, even if only low concentrations are involved.

The relatively large degree of uncertainty in the choice of successful perfumes for cosmetics and other products makes it desirable to test public taste by market research according to *Dr. E. Pankner*.

It would be more sensible to be guided in the selection of perfumes by the advice of experts, cosmetic chemists, cosmeticians, perfumers and businessmen familiar with the market.

Cosmetics

Dr. O. Jacobi described the determination of the spreading effects of 20 different fats and oils applied to the surface of the skin. Results show that spreading and creep of these substances over the surface is very considerable. Other factors are responsible for

spreading besides the viscosity and surface tension of the fats. These factors are: moisture content, the content of surface active X-substances and the sebaceous content of stratum corneum.

The chief reason for spreading and creeping is, however, the capillary activity of the fine structure of the horny layer of the skin.

The tasks of cosmetics must be limited to "ad hoc" beauty treatment ("make-up") and to skin care designed to protect against harmful environmental influences according to *Dr. G. Dietz.*

Dr. R. Brun described methods for studying the secretion of sweat worked out at the Geneva dermatological clinic.

The methods are: the "ping-pong ball test"; the "Berlin blue test"; and test for palms of the hands and soles of the feet (bromphenol blue test paper)

These methods were used: To determine the effect of medicaments in stimulating sweat secretion; to investigate the protective action of sebaceous matter; and to investigate the physiology of sweat secretion; the influence of age and sex on sweat secretion from the palms, soles of the feet and the armpits.

M. G. deNavarre and J. Peprzan discussed the effect of propylene glycol, 1,3- propanediol, 1,4-butanediol, sorbitol, glycerol and hexylene glycol on preventing the inactivation of methyl p-hydroxybenzoate by G-3720.

Testing Methods

Dr. I. Hajdu described experiments on the properties of creams capable of being measured by means of penetrometers. The main objective was to find a way to compare the degrees of hardness in creams measured under different conditions.

Measurements of hardness serve to control uniformity of production; they should be taken into consideration in questions of packaging; and they facilitate the study of the phenomena of thixotropy and maturing.

The problem of turning out industrial products of uniform color is one that, in general, has been satisfactorily overcome by the application of electrical colorimetry. This method causes difficulties, however, with dyeing processes which produce the dye directly on the material to be tinted. The procedure described by *R. Blanke* permits the technique of unvarying electrical measurement to be used even when oxidation dyes are employed.

Shaving creams are inclined to harden at higher temperatures. Although this phenomenon is generally known, only occasional hints of the possible causes are to be found in the literature. It may be influenced by the addition of excess fatty acid, by electrolytes, by changing the proportions of palmitic and stearic acid or of KOH and NaOH.

Dr. L. W. Masch and B. Ehring found that soap

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creams are soft only within a definite range of temperature.

Among the many materials with which a product comes in contact during its preparation and storage, glass is not inert. In the new experimental technique by *Dr. G. E. Everts*, rinsed bottles are crushed and a definite particle size chosen for the analysis. This method also excludes errors introduced by a superficial, washable alkali film, which often adheres to bottles from the time they are manufactured.

Dr. K. Roth pointed out the value of mathematical statistics in evaluating cosmetic data

Biologicals

Proteins of the living skin are not static systems according to *Dr. P. Rovesti* but are in dynamic equilibrium with the amino acids from which they are formed. The formation of proteins in the skin can be encouraged by increasing the supply of essential amino acid units.

Protein hydrolyzates have shown particular biological value in treating the skin. To facilitate absorption, the water-soluble amino acids were converted into their lipide soluble ethyl- and isopropyl esters, purified by high vacuum distillation or through their N-acyl derivatives.

The cholesterol esters of the essential amino acids had particularly favorable effects, in which the beneficial action of cholesterol was also apparent.

All the amino acid esters referred to were absorbed completely by the skin. The protein hydrolyzates were derived, in decreasing order of importance and effectiveness, from connective tissue, plasma, blood, skin and keratin.

Dr. J. Cotte discussed various applications to cosmetics of the aqueous, glyceroglycolic and lyophilized extracts of organ tissue, "biostimulines," and described investigations of their composition.

It is possible according to *Dr. J. Nuesslein* to prepare organic phosphatides which show slight wetting and washing activity, but which possess excellent ability to bind water, to hold water and especially splendid properties of distribution and emulsification.

These compounds can be used with great advantage as skin care substances for cleansing, light lubrication, for the preparation of combined skin care substances etc. Their action as vehicles with respect to a number of substances is also worth noting.

PERFUME FORMULATION

(Continued from page 729)

(2) Traces of estragon oil, sweet basil oil, and caraway seed oil for production of a delicate herb-like effect;

(3) Touches of phenylacetic aldehyde, paramethyl phenylacetic aldehyde, phenylacetaldehyde di-

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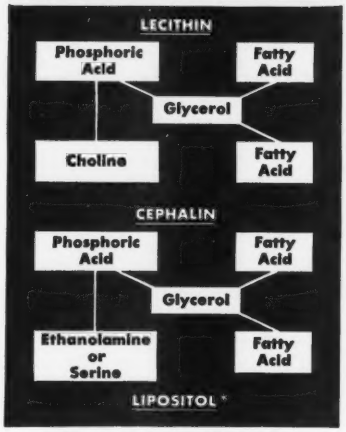

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***Molecular structure of Lipositol has been indicated but unconfirmed. Material does contain:**
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methyl, and hydroxycitronellal to create a hyacinth nuance;

(4) Isoeugenol, black pepper and ylang absolute to add a carnation effect;

(5) Benzyl acetate, amyl cinnamic aldehyde, isobutyl phenylacetate, and hydroxycitronellal to produce a wild rose touch;

(6) Guaiac wood acetate, for a tea rose effect;

(7) Cinnamic aldehyde and alpha methyl cinnamic aldehyde for a novel cinnamon touch;

(8) Labdanum absolute, cinnamyl isobutyrate, citonellyl isobutyrate, "Veronol" aldehyde, for a red rose shading;

(9) More lemon oil, traces of aldehyde C-9 (aldehyde C-14 (peach), oil patchouli, and guauac wood resin for white rose nuances;

(10) Vetivert, oak moss, coumarin, vanillin, heliotrope for an oriental shading;

(11) Musk xylol, musk ketone, for a musk-like touch.

Any of the floral compositions can be used as modifiers for E.022. Jasmin and muguet are particularly attractive, but even lavender may be used to produce the effect of the spicy camphoraceousness found in the rare grey rose. Variations can be built around this simple E.022 composition to the extent that it becomes sublimated in an elaborate bouquet effect such as "An English Rose Garden" fantasy theme. The perfumer should not hesitate to use the rose note liberally, since it contributes a beautiful sweetness and high "recall" value to any composition.

Lipstick Rose. The rose fragrance is popular for lipstick both by itself and for blending in other compositions. The design of fragrances for lipstick use requires a special technique to avoid allergenic irritation. Fragrance oils for lipstick purposes should be tested in the lipstick base in which they will be ultimately incorporated, since there is a slight chance of a synergistic reaction between the fragrance oil and the base that might produce a reaction not shown by the materials when tested individually. Lipstick fragrances, in addition to their odor, must have a pleasing taste. The conventional method is to combine a compatible flavor effect with the fragrance. The following composition illustrates this point.

LIPSTICK STRAWBERRY ROSE E.023

25	Rhodinol
15	Phenylethyl alcohol
5	Phenylpropyl alcohol
3	Terpineol
10	Algerian geranium oil
5	Phenylpropyl acetate
10	Aldehyde C-16 100%
8	Alpha ionone
10	Methyl ionone
5	Musk ketone
10	Dimethyl benzyl carbinyl acetate
8	Dimethyl Phenylethyl carbinyl acetate
8	Isobutyl phenylacetate
8	Phenylacetic acid
20	Hydroxycitronellal dimethyl acetal

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4	Isoeugenol
5	Musk ambrette
1	Allyl cyclohexane propionate
4	Ethyl vanillin
5	Methyl cinnamate
1	Ethyl benzoate
1	Coumarin
6	Cinnamyl isovalerate
175	

There are no free aliphatic or aromatic aldehydes with known irritating properties. Aldehyde C-16 is a pseudonym; it is actually a glycidic ester. Ethyl vanillin is an aldehydic body whose activity is very much modified by its structure. Liberal use is made of esters to intensify the flavor effect. The materials especially used to create the strawberry flavor are: Aldehyde C-16 100 per cent, Dimethyl phenylethyl carbinyl acetate, dimethyl benzyl carbinyl acetate, allyl cyclohexane propionate, ethyl vanillin, methyl cinnamate, ethyl benzoate, coumarin, cinnamyl isovalerate. To create a more powerful aroma, 1-2 per cent of Palatone may be added.

Rose Otto Type. Natural rose otto is prohibitive in cost for the moderate and lower priced fragrances which the perfumer is so often required to design. Therefore, he must have some imitation composition to use as a direct replacement, or as an "extender" of the natural rose otto. Following is the formula for such a composition:

ROSE OTTO TYPE E.024

40	Rhodinol
40	Geraniol ex Palmarosa
10	Geranium Algerian Terpeneless
10	Phenylethyl alcohol
5	Hydratropyl alcohol
6	Alpha ionone
3	Hydroxycitronellal
2	Aldehyde C-14 (Peach) 10% in DEP
7	Geranyl acetate
3	Dimethyl octanyl acetate
1	Aldehyde C-16 100%

Rose Absolute Type. The substitution or "extension" of the costly rose absolute is another problem encountered by the perfumer in making his moderate and lower-priced compositions. A simple formula for this purpose is:

ROSE ABSOLUTE TYPE E.025

50	Rhodinol
30	Phenylethyl alcohol
10	Hydratropyl alcohol
10	Algeranium Geranium oil
5	Absolute immortelle 10% in DEP
1	Absolute cyste labdanum 10% in DEP
1	Eugenol USP
2	Mimosa absolute 10% in DEP
3	Benzyl propionate
1	Citronellyl oxyacetaldehyde
1	Ethyl Pelargonate 10% in DEP
5	Guaiac wood acetate
5	Citronellyl phenylacetate
2	Eugenyl phenylacetate
2	Geranyl benzoate
1	Isobutyl phenylacetate
2	Palatone 2% in phenylethyl alcohol
4	Phenylacetic acid
15	Diethyl phthalate
150	

An Elaborate Rose Type. The fragrance of the following composition, an example of a fancy rose type, is patterned after the famous "New Yorker" rose hybrid developed by the Jackson-Perkins Company (Newark, New York State).

ROSE "NEW YORKER" E.026

85	Rhodinol
40	Rhodinyl propionate
10	Phenylethyl alcohol
10	Hydratropyl alcohol
10	Methyl ionone
5	Alpha ionone
5	Aldehyde C-16 100%
5	Citronellyl oxyacetaldehyde
2	Methyl heptine carbonate 10% in DEP
2	"Veronol" aldehyde
5	Hydratropyl acetate
6	Cinnamic alcohol
2	Oil bergamot natural
20	"Golden Jasmin" E.004
15	"Muguet Extra" E.017
5	Oil lemon California
6	Musk ketone
10	Guaiac wood acetate
10	"Phantolid" (Polak Frutal Works)
6	Algerian geranium oil
10	Phenylethyl propionate
1	Aldehyde C-12 MNA 10% in DEP
10	Dimethyl octanol
5	Dimethyl octanyl acetate
5	Bulgarian rose otto natural
10	Diethyl phthalate

In this composition the perfumer should note the use of rhodinol propionate instead of the conventional acetate, as a variation. Aldehyde C-16 100 per cent gives a fruity strawberry tone. Methyl heptine carbonate produces a violet leaf variation. "Veronol" aldehyde and citronellyl oxyacetaldehyde add pungency and freshness. Bergamot and lemon oils give a light citrus topnote. "Golden Jasmin" and "Muguet Extra" are floral adjuvants. Guaiac wood acetate produces a tea-rose touch. "Phantolid" gives the musk-like richness found in the natural New Yorker rose blossom. Dimethyl octanol and dimethyl octanyl acetate serve as modifiers of the rhodinol and rhodinol propionate, giving them a fruity nuance closer to the true rose.

CARNATION

From the perfumer's viewpoint the carnation is merely a rose spiced with a clove-like note. The latter may be derived from clove oil itself, its principal isolate eugenol, or the latter's isomer isoeugenol. Although these three materials may often account for 50 to 60 per cent of the total of a carnation formula, they still do not perfectly reproduce the desired effect. Apparently other spicy chemicals exist in the carnation flower which have not yet been identified. To simulate this missing spicy effect, use is made of such diverse materials as: the essential oils of birch tar, black pepper, cardamon, nutmeg, mace, pimento and bay; the synthetics methyl hexyl ketone, ethyl amyl ketone, methyl eugenol, isoeugenol and methyl formate. The latter has an odd, lively odor, quite interesting but for some unknown reason not well

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recognized by perfumers in general.

One of the noteworthy new research chemicals applicable to carnation work is the so-called "Ethyl" isoeugenol (3-ethoxy, 4-hydroxy benzaldehyde) which bears the same relation to isoeugenol as ethyl vanillin does to vanillin. Its odor is somewhat deeper than isoeugenol but much more flowery. Because it is presently synthesized from ethyl vanillin in rather poor yield, its cost is so high that its use is very limited.

The carnation fragrance encounters an unusual degree of sales resistance. A fragrance product clearly designated as "carnation" or "pink" (or a similar name suggesting the carnation to the public) is presently one of the poorest promotional risks. It is believed that this situation stems from the unhappy psychological association with the flower created during World War II, when the carnation was one of the most common funeral flowers because it could be grown most prolifically with the minimum use of the then war-scarce labor.

In apparent contradiction of this statement there is "Bellodgia" (Caron) an exquisite French carnation bouquet with aldehydic nuances. It has been in existence for more than 25 years and is still popular.

It should be carefully noted that the product has been clearly dissociated from the carnation in both name and presentation. Apparently the association with the carnation itself is more of a handicap than the actual fragrance.

The carnation fragrance, however, has immense utility as a base and adjuvant for fantasy creations. "L'Origan" (Coty) is a brilliant play between the carnation and methyl ionone. "Tabu" (Dana) contrasts the spicy carnation with an elaborate, geranium-musk, and vanilla combination in a most appealing manner. Carnation may be employed in almost any floral effect or fantasy as an "enlivener."

Following are the "purpose" classifications for the carnation components:

Basics. Clove oil, eugenol, isoeugenol, pimento oil, "Ethyl" isoeugenol, amyl salicylate, hexyl salicylate.

Blenders. Phenylethyl alcohol, tolyl alcohol, hydratropyl alcohol, cinnamic alcohol, linalool, methyl isoeugenol, methyl eugenol, "Rosottone S" (Dow), eugenyl formate, blackpepper oil, "Dorisyl" (Dow), cardamon oil, isoamyl phenylacetate, isobutyl phenylacetate, nutmeg oil, "Prentalin" (Dow), oil of bitter orange, oil bergamot, terpineol, heliotropine Clary sage oil.

Adjuvants. Ylang absolute, ylang Bourbon Extra, "Floralizer #12" (Shulton), orris concrete, methyl isopropyl acetophenone, tolyl aldehyde, "Veronol" aldehyde, citronellyl oxyacetaldehyde, paracresyl caprylate, paracresyl isovalerate, dimethyl octanyl acetate, citronellyl propionate, oil of mace, oil of bay, oil of birch tar, phentlacetaldehyde, paramethyl hydratropic aldehyde, alpha naphthyl propionaldehyde, hydroxycitronellal, "Alpine Violet," "Cumin" ketone, citronellyl acetate Alpha ionone, methyl ionone, phenylethyl propionate, hydratropyl propionate, oil of petitgrain.

Fixatives. Eugenyl phenylacetate, benzyl isoeugenol, benzyl salicylate, vanillin, ethyl vanillin, musk xylol, musk ketone, Tonquin musk tincture, civette natural, various amber type compositions.

Naturals. Absolute of rose, jasmin, orange blossoms, tuberose, mimosa, and otto of rose.

The following formula illustrates the general approach to the compounding of a carnation fragrance. It may be modified in an almost unlimited number of ways, with adjuvants selected from other floral groups, and with actual compositions. Compositions of the same odor type as the natural absolutes indicated are most successful.

CARNATION E.027

2	Amyl cinnamic aldehyde
2	Phenylethyl propionate
2	Methyl ionone
2	Musk xylol
2	Rosottone "S" (Dow)
10	Musk ketone
5	Heliotropine
4	Ylang Bourbon extra
4	Benzyl acetate
1	Benzyl propionate
3	Hydratropyl alcohol
6	Diethyl hydroquinone
8	Terpineol
8	Phenylethyl alcohol
6	Anisic aldehyde
4	Anisic alcohol
10	Geranyl acetate
3	Dimethyl octanyl acetate
12	Citronellol
12	Cinnamic alcohol
3	Hydratropyl propionate
15	Hydroxycitronellal
2	"Cumin" ketone
1	Oil birch tar 5% in DEP
1	Oil of bay
1	Citronellyl oxyacetaldehyde
5	Paracresyl caprylate
15	Eugenyl phenylacetate
3	Ethyl vanillin
1	Methyl isopropyl acetophenone 10% in DEP
25	Eugenol
20	Isoeugenol

The following is a carnation type of base that is useful as a building block or adjuvant. It should be regarded and handled as a source of a spicy clove note for basic work, and not as a finished carnation composition.

DIANTHUS PINK E.026

175	Isoeugenol
35	Eugenol
5	Oil of bay
20	Oil ylang extra
5	Rose otto
15	Oil black pepper
3	Oil cardamon
1	Citronellyl oxyacetaldehyde

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15	Cinnamic alcohol
5	Hydratropyl alcohol
15	Phenylethyl alcohol
15	Orris concrete
5	Methyl ionone
2	Alpha ionone
1	"Veronol" aldehyde 10% in DEP
3	Heliotropine
25	Benzyl salicylate
350	

HONEY

Honey, better known as "miel" is primarily a working base, liberally constructed with rose materials, and used like a rose composition for sweetening purposes but generally considered to be more intense. It is used extensively in the ultra-fancy Chypre types, in which there are heavy Oriental characteristics. The following two formulas demonstrate the basic construction of a cheap and expensive miel composition.

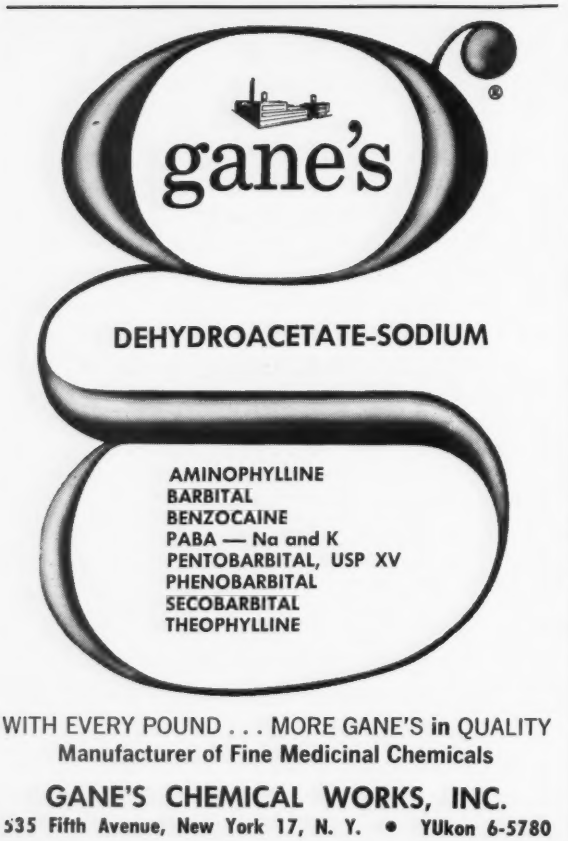
MIEL POUR SAVON E.029

18	Phenylacetic acid
22	Hydroxycitronellal
5	Ethyl phenylacetate
2	Isobutyl phenylacetate
12	Phenylethyl alcohol
3	Rosottone "S" (Dow)
3	Musk ambrette
4	Amyl cinnamic aldehyde
5	Methyl ionone
3	Isoeugenol
5	Terpineol
2	"Veronol" aldehyde 10% in DEP
4	Methyl acetophenone
4	Benzyl propionate
2	Benzyl acetate
20	Citronellol
6	Dimethyl octanyl acetate
2	Alpha ionone
2	Methyl phenylacetate
5	Benzophenone
15	Benzyl salicylate
150	

If costs will allow it, more Rosottone "S" (Dow) can be added for an enriched effect. The addition of 2-3 per cent of "Cumin" ketone (Verona) will produce an interesting variation appreciated in soap work.

MIEL SUPRA POUR PARFUM E.030

200	Methyl anthranilate—Hydroxycitronellal Schiff's base ("Aurantiol")
25	Phenylacetic acid
50	Musk ambrette
10	Ethyl phenylacetate
4	Skatole 10% in DEP
20	Anisic aldehyde
20	Terpineol
10	Citronellyl oxyacetaldehyde
20	Amyl cinnamic aldehyde
10	Hexyl cinnamic aldehype
20	Tuberyl acetate
10	Hydratropyl alcohol
40	Isoeugenol
5	Eugenol
50	Phenylacetaldehyde 50% in benzyl alcohol
1	"Veronol" aldehyde 100%
40	Bulgarian rose otto natural
5	Phenylpropyl alcohol
5	Phenylpropyl acetate
50	Methyl ionone
70	Hydroxycitronellal
10	"Cumin" ketone (Verona)
150	Basic rose E.022
15	Dimethyl octanyl acetate
850	



(*Continued from page 734*)

service in most parts of Asia or Africa.

And when this well-staffed army sallies forth from its borders carrying the nostrums of communism in its medical kit, it will have a proposal to make that could be quite appealing.

The Soviets, at no cost to their "ideals," can set out to buy the allegiance of people with the promise of good health, because they believe that the end justifies the means. But we cannot. We cannot deflect our great system of medicine from its historic mission, service to humanity, and use its fruits to buy the allegiance of anybody to anything—even to the United States or to the noble idea of freedom.

It might be argued by some that we should not concern ourselves with what may appear to be only the fine points of philosophy when we are in the midst of a long, tough fight for survival against a ruthless enemy. But, in the long run, we can win only if we concentrate more on what we are fighting for, which is the rights of man, than on what we are fighting against.

The haphazard system we have used in the past has been made obsolete by the speed of events—the advent of the Soviets and the rapid rise in the expectations of the peoples in this area. The logic of survival requires that we now make a concerted effort on a broad front. As a beginning, I suggest the following:

(1) *Alert the public to the challenge of Soviet medicine in the underdeveloped countries.* Intelligent and sustained action will have to be based on public understanding. The facts about Soviet progress in medicine and about Russian moves in the underdeveloped countries should be more widely known.

(2) *Develop a bold new foreign medical aid program of our own.* This can be built around the excellent bill that Senator Lister Hill and Congressman John Fogarty introduced at the end of the last session of Congress to set up an international medical research program.

Several agencies of the federal government are developing a program for the next session of Congress. Part of it should be continued and expanded support of World Health Organization activities in the underdeveloped countries.

(3) *Support private organizations that are working in the foreign medical field.* In many ways nongovernmental agencies, such as Medico, the People-to-People program, Dr. Howard Rusk's World Rehabilitation Fund, The World Medical Association, Columbia University's newly-formed Institute of Nutrition Sciences and several of the foundations, with help from our medical profession and our medical schools, are or can be more effective as emissaries of our way of life than official bodies.

(4) *Encourage participation by our pharmaceutical industry.* It is in the interests of the industry as well as of the government for the two to work to-

gether on a program that would make more drugs available in these countries. In many countries the commercial incentives are strong enough for pharmaceutical firms to take the financial risks themselves. In such cases, support such as the State Department gave Merck throughout its negotiations in India would be helpful. But in some countries, where private incentives are inadequate, the alternative to Russian plants in the public sector is some form of U. S. government help to make the know-how of American corporations available.

In this connection, we should explore the merits of the imaginative plan proposed by Dean Donald David at the 50th anniversary of the Harvard Business School. He suggested that Federal funds be used to retain corporations, rather than just individual technicians, to build foreign facilities or even develop whole industries in areas where the risk is too great or the reward too small to justify the use of private capital.

A global war against disease is a vast undertaking. At this stage of public awareness and with the resources presently at our command, we can make only a small beginning, which is why the program outlined above is a modest one. But the urgency of the problem in the underdeveloped countries requires that we make an immediate start.

We should assume this responsibility because the day has passed when either a man or a country can live with either moral comfort or physical safety on an island of plenty and good health surrounded by a sea of poverty and sickness.

We should do it in the hope that loosening the bonds that bind most of mankind to hunger and disease will be a major step in helping to liberate the human spirit.

INHALATION AEROSOLS

(*Continued from page 741*)

be more expensive than conventional forms of therapy, consider that there are from 150 to 200 dosages in each 10 cc. aerosol vial with a 50 mg. metered valve. How can one measure, in terms of dollars and cents, the value of a drug which is effective in affording immediate or sustained relief for the particular disease treated?

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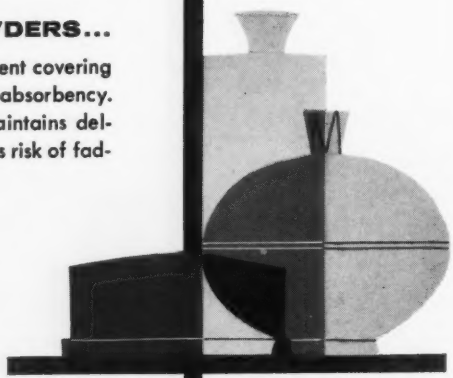

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REFERENCES

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COLOR IN PACKAGING

(*Continued from page 743*)

But a finished package must, in every respect, be outstanding. The use of only delicate tints and shades would not achieve the necessary strength for display in shops and self-service stores, among a host of other competing items. This problem may be overcome in stressing the quality of the product by a background color, the message being reproduced in stronger colors, perhaps suitably complementary. In this way the stronger colors, by their contrast, cause the more delicate background to be emphasized, thereby, by color association, expressing the chief quality of the product.

The next problem to which a designer must give his attention is the type of lighting in which the finished package will be seen by the public. The two basically different forms of lighting are of course daylight and artificial light. How many shopping wives today study the grocers' windows in daytime? In the first place these windows are usually dressed with tins, packets or jars stacked in some formal pattern, often of very little interest. Secondly, the extension of the self-service principle has well-nigh rendered unnecessary all such window displays.

The shop, or store, inside is itself at once the place of display and purchase. Such premises, especially if they are of any size, are lit mainly by artificial light. The packaging designer must therefore decide, in selecting his colors, whether they should be made to achieve their best effect by daylight or by artificial light.

Can it be said that the packaging designer has hitherto given proper, or full, consideration to the type of lighting in which the colored finished package will be seen by the public? To this question one might reply by a counter question: how can he anticipate the type of light in which the final package will be seen? It will, of course, be seen in all sorts of lighting. The problem may, however, be narrowed down to the type of lighting that might be expected

to prevail most at points of sale; for it is to the purchasing public that the designer and the manufacturer of the product must direct their efforts.

The quality of the light source can have a profound influence upon colors. We all know, for example, how ghastly we appear to one another under certain types of street lighting. There are two ways in which the quality of light may be measured. The first is by means of its wavelength; the other is by what is termed its color temperature. It is this latter method that is usually adopted for purposes such as those we have at present in mind.

Now the color temperature of a light is equivalent to the temperature to which a black body (that is, a perfect radiator) must be heated to emit a light of the same color. It is expressed on the Kelvin scale as so many degrees Kelvin. The following are the color temperatures of various common light sources:

Light Source	*Color Temperature °K*
Clear Blue Sky	10,000
Full Cloudy Sky	8,000
Bright Sunlight at Noon	6,500
'Northlight' Fluorescent	6,500
Average Daylight	5,800
Winter Sunshine	5,000
'Daylight' Fluorescent	4,500
'White' Fluorescent	3,500
'Warm White' Fluorescent	app. 3,000
100/150 watt Tungsten Lamps	3,000
80 watt Tungsten Lamps	2,800
40 watt Tungsten Lamps	2,700

From this table it will be seen that the warmer the prevailing light the lower is its color temperature; and the colder the light, the higher its color temperature.

The enormous range in the colors of light sources is one that cannot be altogether ignored. Ladies, when buying dress material, are always careful to take it to the shop door to see what it looks like by daylight; perhaps some of them do not always realize that if they are, for example, wishing to make an evening frock they should be guided respecting the color by its appearance under artificial lighting; for under similar artificial lighting will the finished frock later be worn. What, then, is most likely to be the light source of the retail premises in which foil-packaged foods are mainly sold?

Daylight is undoubtedly playing a smaller and smaller part in the illumination of retail premises. Our concern then is with artificial light.

As will be seen from the above table, artificial light can vary enormously in its color, ranging in color temperature from about 2,700° K to 6,500° K. It will be seen, too, that artificial light can be made to match closely bright sunlight at noon. The loss of actual

(*Continued on page 818*)

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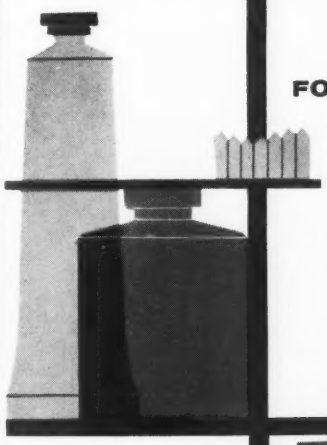

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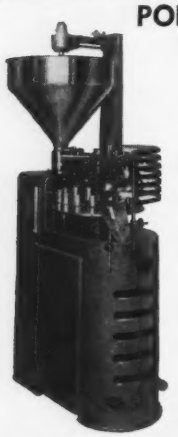

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daylight is therefore no real disadvantage; for if necessary daylight may be quite effectively reproduced. But do the proprietors of stores wish to illuminate them with what might be described as artificial daylight? In the main, No.

Although the whole problem of light source and the colors of retail merchandise has not yet been studied to anything like the extent that the importance of the subject warrants, it is already realized that the color of light source exercises a pronounced psychological influence. In shops and stores this influence must, of course, be directed to increasing sales. Now it is a fact that people generally prefer a warm to a cold light; or, in other words, they may more easily be made happy—and thereby increasingly sales-receptive—in a light of a lower, rather than of a higher color temperature.

Today, artificial light is produced by two different types of electric lamps. There are firstly the ordinary tungsten bulbs; and, of more recent development, the fluorescent tubes. Whilst the former are still widely used there can be no doubt that in all new or rebuilt retail premises the latter are now almost exclusively installed.

As proprietors of stores seldom if ever wish to reproduce daylight they usually select tubes that have a color temperature of less than 5000° K. The so-called 'Daylight' fluorescent tube, rated at 4,500° K is often used; although perhaps the 'White' and 'Warm White,' yielding light of 3,500° K and approximately 3000° K respectively are the most popular. It would therefore appear that packaging designers should select colors that will achieve their desired effect in artificial light of a color temperature ranging between 3000° K and 4,500° K—a lighting that is very much warmer indeed than any sort of daylight.

Red, under artificial light of 3000° K will appear quite brilliant; for such light contains a lot of red and little blue. If red were viewed under completely blue light it would appear black. Daylight of some 8000° K, although containing very much more blue than artificial light of 3000° K, has in it nevertheless a quantity of red; thus red in daylight, while still appearing red, seems less brilliant than it does under, for example, tungsten artificial light.

Blue, on the other hand, will, in daylight of 8000° K, appear at its brightest; yet when it is viewed in artificial light of 3000° K it will appear nearly black; for artificial light of this sort is almost deficient of blue. In other words, when a color is viewed by a light source having a large admixture of its complementary color, it will appear darker; when viewed in a light of a color approaching itself, it will appear brighter.

This might perhaps be said to be an over-simplification of a very complicated subject. Nevertheless, it does serve a useful purpose for general guidance. The main point to bear in mind is that while day-

light, even at 10,000° K, is rich in blue, it is not deficient in the other colors of yellow and red; thus, whilst it can vary somewhat in its color balance, or composition, there is always in it sufficient of all colors to enable any other color to be viewed by it more or less correctly. Artificial light, on the other hand, especially tungsten lamps, and 'white' and 'warm white' fluorescent tubes ranging between 3000° K and 3500° K are quite unbalanced in their coloring, consisting chiefly of red and yellow, with almost complete deficiency of blue.

From this it follows that packages to be sold in shops illuminated by these light sources should not, as their predominant color, be blue; for it would appear nearly black. Reds and yellows together with their kindred tints and shades should be used for the principal part of designs; it is they that will have the most brilliant appearance under such lighting.

This necessitates that the packaging designer selects and applies the colors of his original design, under lighting as near as possible to that under which the final packages will be displayed for sale. It would be unwise for a designer to devise and apply delicate tints and shades in a north-light studio if his work is to be seen in artificial light, in which these tints and shades could look quite dull and unattractive.

While the above may be taken as simple, broad and general principles relative to packaging design, the whole matter is complicated when colors are applied to aluminum foil. The surface of aluminum has a total reflectivity to white light of some 85 per cent; moreover, the colors applied to foil are frequently transparent; it is, indeed, these facts that make a foil package so very outstanding in any light source. Even so, attention must still be paid to the effect of different light sources upon colored foil if the best result is always to be achieved.

As a foil surface reflects so great a part of prevailing light the colors applied to it will be affected accordingly. A silver uncolored aluminum foil when viewed in tungsten lighting appears slightly gold. If a transparent color is then applied that color will obviously be given a golden or reddish cast. If, however, the transparent color is gold or red, it will be given much increased chroma, or intensity. Should, however, the color be blue, it would appear darker. If blues are used they should not be too dark so as to withstand as successfully as possible the darkening influence of the artificial light.

In modern fluorescent lighting of shops and stores the printed foil pack can be displayed to particular advantage. Predominant parts of designs should be in warm colors—such as reds and golds—which will show up with particular intensity. Blue and the colder colors should be used for subordinate motifs; for although these will be seen as somewhat deeper colors, they will form a contrast with the main parts of the design, to which they will thereby give increased importance.

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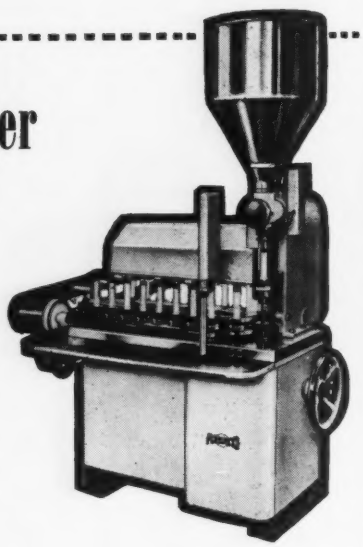

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(*Continued from page 721*)

solvents and water; the use of gums and hair conditioners and the use of anion-cation color complexes to achieve full-intensity hair rinses.

High-density polyethylene resins prepared by the low-pressure process offer opportunities for new packaging applications in the cosmetic, pharmaceutical and chemical specialty fields, according to *E. J. Temple* of Plax Corporation. Bottles manufactured from these resins exhibit lower permeability than the conventional polyethylene squeeze-bottles and better resistance to grease and oils. They can be sterilized by normal autoclave methods. The greater rigidity of the high-density polyethylenes allows the use of lighter bottle weights for certain enduses and therefore a more economical package. High rigidity is also of advantage in producing an improved plastic jar.

S. G. Knight of the University of Wisconsin described the discovery of the fungistatic potential of certain triglycerides during research on the hydrolysis of fats and the oxidation of fatty acids by *Penicillium roqueforti*. Glycerol triacetate and some of the glycerides of higher fatty acids have rather broad spectra of antifungal activity in the laboratory, but have been found to be rather inactive against saprophytes.

Extensive clinical tests have shown glyceryl triacetate will cure about 90 per cent of the usual fungal skin infections, but not monilia or blastomycoses. Skin enzymes at a neutral *p*H value hydrolyze the ester, which liberates acetic acid, which is fungistatic, especially at lower *p*H values. When the *p*H value falls to 3.5 enzymatic hydrolysis ceases. Organisms do not become resistant to triacetin, and the compound has an extremely low order of systemic, oral, ocular or dermal toxicity and is nonsensitizing. Apart from its fungicidal action, glyceryl triacetate may be useful where it is considered desirable to maintain a low *p*H value on the skin surface or in body cavities.

James Y. Oldshue of Mixing Equipment Co., Inc., emphasized that mixing is an important part of cosmetic manufacturing and the process design should consider the requirements of the various mixing processes. These would include flow patterns, typical mixing impellers and the requirements of the mixing processes. Impeller pumping capacity and fluid shear in the mixing system were discussed for blending, liquid-liquid contacting, solid-liquid contacting and heat transfer. The effect of speed, impeller design fluid viscosity and fluid density of power consumption were covered. Specific applications to cosmetic manufacturing were made in illustrating basic principles of fluid mixing.

Dr. L. S. Fosdick of the Northwestern University Dental School reviewed the mechanism of the development of caries and known methods of control.

(*Continued on page 822*)

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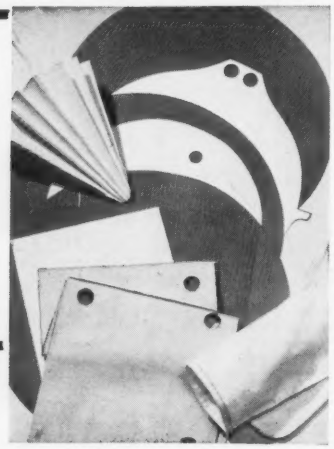

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(*Continued from page 820*)

Differences between theories and results indicate that factors not ordinarily recognized occur in the process. Regulation of permeability of the tooth and the dental plaque may be important in regulating the intensity of caries. By the use of oral preparations, the permeability of the tooth might be reduced and caries diminished.

PATENT THOUGHTS

(*Continued from page 759*)

or art showed α, α' dichlorodimethyl sulfone. In other words the compound covered by the patent application contains one more chlorine atom substituted on the methyl group on each side of the sulfonyl radical than does the compound of the prior art.

The Patent Office Examiner ruled that, even though the prior art compound was not a homolog or an isomer of the claimed compound, a claim to the latter was not patentable in the absence of a showing that it had unexpected beneficial properties not shared by the reference compound.

The Board agreed with the Patent Examiner, pointing out that novelty alone is insufficient to impart patentability to a claim when the prior art is sufficiently suggestive of the claimed invention. The Patent Examiner and the Board took the position that the chemical and physical properties of a chlorinated compound would be expected to vary gradually as more hydrogen is replaced by chlorine.

It can be seen, therefore, that it is necessary to show unexpected beneficial properties not only in cases where the prior art knows of isomers or homologs but also in cases where the prior art structure is close enough as to be "sufficiently suggestive." This opens up quite an area wherein reasonable people may disagree, if this decision is followed and practiced. Actually, the ruling is not a new one, the same point having been made in a decision of the Patent Office Board in 1948.

What makes the Dole case noteworthy, in the view of the writer, is the fact that the Patent Office has adopted another rather restrictive ruling in the last few years and that this latter ruling, coupled with the main ruling of the Dole case, may well impart a hardship on those attempting to obtain protection on chemical products. The restrictive ruling referred to is a requirement that the advantages that are asserted over prior art compounds must be advantageous of the general nature of those *asserted right in the specification.* In other words, if the specification discloses an insecticidal property and you attempt to show that your claimed compound has superior properties over that of a reference compound, you are limited to a showing of advantages *in the insecticidal field.* If you go outside the field and, for example, show that your compound has better herbicidal or

microorganism-inhibiting properties, the Patent Office will disregard your showing. As a matter of fact, that was the situation in the Dole case.

In sum, the situation confronting an applicant for protection on a new chemical compound when he writes his patent application, is that he has no way of knowing what prior art compound the Examiner will cite against him, and the applicant must make sure that his statement of utility in the application is sufficiently broad as to permit the applicant to submit tests which will show superiority of the claimed compound over the particular compound *relied upon by the Examiner*. Such a ruling invites broad utility statements which may or may not be correct. The ruling, therefore, would seem to penalize the great majority of chemical applicants, who are quite meticulous with respect to making correct disclosures, and would seem to favor those applicants who are not quite so careful of the statements they make in patent applications.

RECENT PATENTS

2,855,401—May & Baker—Aminophenoxy Pentyl Sulfanamides a Saccharines.

2,855,404—G.D. Searle — Oxygenated Androstene Diones.

2,855,405—Ethicon — Alkylaminomethyl Bicyclo Heptenes and Heptanes.

2,855,410—Olin Mathieson—16 Oxygenated Steroids.

2,855,411-13—G. D. Searle—16 Halogen Estrones.

2,855,415—G. D. Searle—Hydrocortisone and Cortisone Steroids.

2,855,419—Upjohn—Oxy Dipropylbenzoates.

2,855,438—Am. Cyanamid—Bis(Dimethyl Acetylcyclobutyl) Butane.

2,856,286—Applications Biologiques (France) — Product for Augmenting the Biological Value of Nutritive Products.

2,856,326-7—National Dairy Products—Lactate Composition for Treatment of Bovine Keton's.

2,856,405—Lakeside Labs.—Mercuration Products of 1-(2-Pyrimidyl)-3-Allylurea.

2,856,406-7—Lakeside Labs.—Aminoacid Esters of N-Substituted Hydroxyalkyl Piperidines.

2,856,415—G. D. Searle — 3, 19-Dihydroxy-5-Androstenes.

2,856,416—Merck—Ring-A Brominated Intermediates.

2,856,421—Abbott Labs.—Crystalline Salts of Pantothenic Acid.

2,857,282—U. S. A.—Inhibition of Enzymes in Plant Tissue.

2,857,311—Rohm & Haas—Dermatological Mixture of Ion-Exchange Resins.

2,857,312—Eli Lilly—Esters of Erythromycin and Carbomycin.

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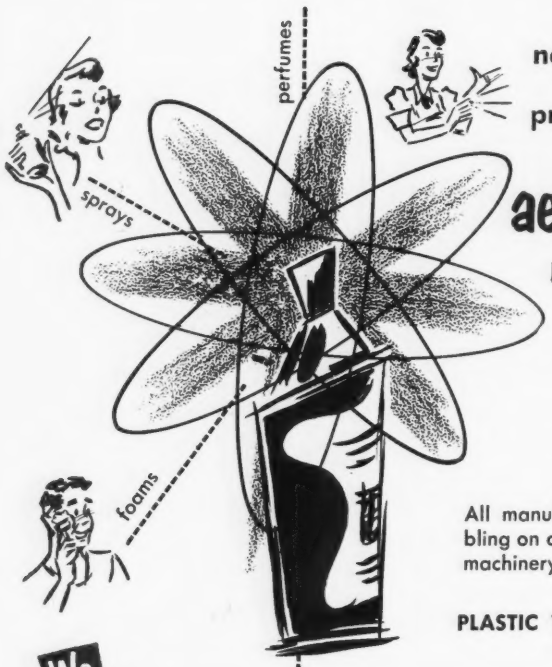

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